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BEFORE THE BABY COMES

A PRACTICAL, NON-TECHNICAL
MANUAL FOR PROSPECTIVE MOTHERS

BY
MARIANNA WHEELER
FOR TWENTY YEARS SUPERINTENDENT
OF THE BABIES' HOSPITAL, NEW YORK



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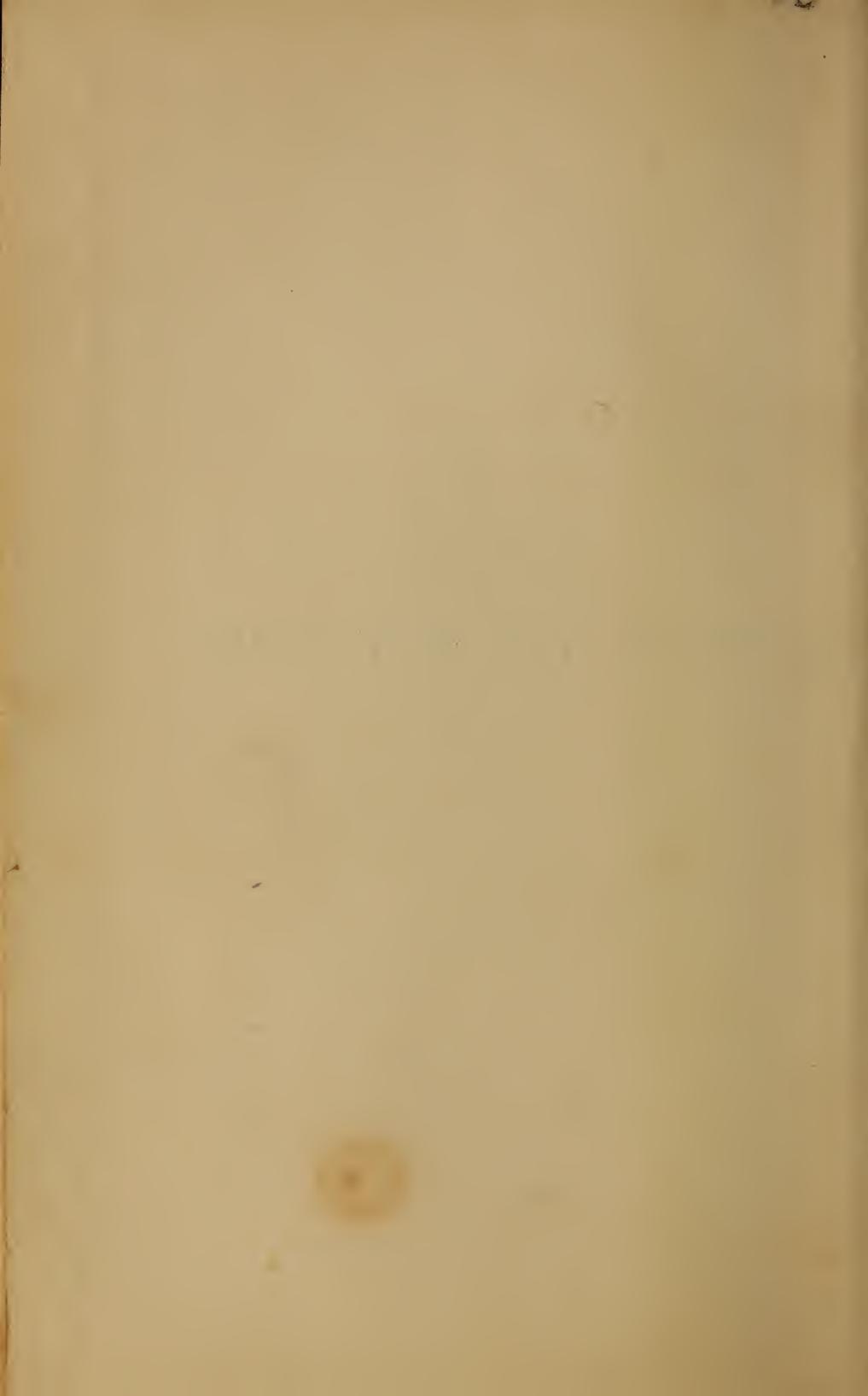
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BEFORE THE BABY COMES



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I

INTRODUCTION

NORMAL development, good general health, and healthy pelvic organs should be the aim of all women. To obtain these, attention must be given to hygiene, especially by young girls. The organs of generation are the last to reach their full development, and when a girl is lacking in health and vitality the undeveloped organs are prone to take on disease; heredity also must necessarily have some influence upon them. Lowered vitality, specific diseases, and physical

defects may be handed down by one or both parents. But even in such cases, by proper living and hygienic measures, much may be corrected and overcome.

Proper attention should be paid to a certain amount of out-of-door exercise. This should not be carried to excess, but there should be enough to keep the muscles strong and healthy and to improve circulation. Daily baths should be taken in order to keep the pores of the skin open and clean, thus aiding in throwing off the body poisons. Young girls should eat sufficient nourishing food to furnish energy and growth as well as to replenish bodily waste. Careful attention should be given to the bowels. There should be a daily movement to prevent the absorption of poisons from the waste matter. These, if not passed from the body through the bowels, naturally escape into the system. The bladder should be emptied frequently enough to prevent its distension, as an over-distended bladder may cause a displacement of the uterus.

During menstruation a certain amount of rest should be taken. Violent exercise

should not be indulged in, and exposure to cold should be avoided as much as possible. When it is necessary to go out in storms or in severely cold weather a girl should be well protected against the elements. Clothing should be worn sufficiently loose not to constrict any part of the body, especially the abdomen, and it should be warm enough for real comfort, not for imaginary protection. Late hours and nervous or mental strain should be avoided.

Few young women about to assume the responsibilities of motherhood have more than a vague idea, if any, of the organs of generation. These organs do not come to their full development until the period of pregnancy. It would probably be of little help to the prospective mother to go into a detailed and technical description of them, but it will help her to have a little definite knowledge of the position of the reproductive organs and their relation to each other.

The *pelvis* is a bony girdle or cavity situated low down in the abdomen, the bones which outline it being held in position by fibrous bands or ligaments. This

cavity is bowl or basin shaped, open and broad at the top. The sides are lined with muscle, as is also the base. In this bony basin lie the internal organs of generation —*i. e.*, the uterus, or womb; the ovaries, which contain the female element; the fallopian tubes, which connect the ovaries with the womb; and the vagina, which is the outlet through which the infant passes at birth. The pelvis also contains the kidneys, the bladder, and the rectum.

The *uterus* is a pear-shaped organ. Normally it is three inches long, two inches wide at its broadest part, and about one inch thick, and is composed more or less of elastic muscular tissue. It can readily be seen why it must be elastic, as the fetus increases in weight from about one-sixteenth of an ounce, which is its weight the first month, to between seven and eight pounds, the average weight at birth. The uterus lies in the center of the pelvis, between the folds of a broad membrane called the broad ligament, which extends across from one side of the pelvis to the other. Besides this broad ligament there are two smaller cord-like ligaments on

either side. The upper or broad part of the uterus, called the fundis, is free and movable. The lower or smaller part is called the cervix, or neck, and projects into the upper part of the vagina, where it is loosely encircled by it. In the center of the cervix, corresponding to where the stem of the pear is attached, is a small opening called the os, or mouth, which leads through the neck into the hollow of the uterus. Before a woman becomes pregnant this canal is so small that it scarcely admits the end of an ordinary knitting-needle.

The *ovaries* are two oval-shaped bodies one and one-half inches long and a third of an inch thick. They lie on the broad ligament, on either side of the uterus. Within the ovaries is the female element called the ovum, or egg. Each ovary contains from forty to seventy thousand ova at birth, but these do not ripen or mature until about the twelfth or sixteenth year. At this age they escape once a month from the membrane, or sac, inclosing them and travel through the fallopian tubes toward the uterus, to be either cast off or to meet

the male element and become impregnated. The presence of both or even of one ovary is not necessary for conception. As long as even a small part of one ovary remains, if it contains healthy ova, and if there is no obstruction of the fallopian tubes or of the passage leading from the uterus to the outside, conception may take place.

The *fallopian tubes* are two partly muscular tubes leading from the ovaries to the uterine cavity. At the end attached to the ovaries they are quite broad, but grow gradually smaller, becoming quite small as they enter the uterus. These, like the ovaries, are held in place by the broad ligament. Occasionally a fertilized ovum may remain in the tube and develop there. This is called a tubal pregnancy. As it is a serious condition, it should be recognized early in order to obtain relief by operation. It is best always to consult a physician early in pregnancy, even though this complication is rare.

The *vagina* is a canal two and a half to three and a half inches long which leads from the uterus to the outside of the body. It encircles the lower part of the womb and

extends downward through the pelvic floor, or perineum, as it is properly called. The vagina is very elastic and admits of a great deal of stretching at the birth of the child, while the perineum, which is of firmer elastic muscle, acts as a support to keep the pelvic organs in place as well as to help support the enlarged organs during the first three months of pregnancy. After this time it is relieved of their weight, as the uterus, by its own weight, begins to be lifted higher up in the pelvis.

During childbirth the perineum plays an important part by its resistance and by directing the advancing part, which is usually the head, in the right direction toward the outlet. Sometimes when the child advances so rapidly that the muscles are forced, or when the body is too large in proportion to the outlet, or if for some reason the muscles are rigid and unyielding or thin and weak, the perineum is apt to become torn. When the tear is a tiny one, sewing it up is usually not necessary, as it will in a very short time repair itself and heal without interference. But if the tear is more than a small nick one or more

stitches should be put in immediately, according to the extent of the laceration, unless there is some good reason for not doing so. This will prevent misplacements of the uterus, and better results are obtained than if it is left for months without repairing. If it is not done the uterus, without the support of the firm pelvic flooring, is apt to sink down from its normal position and tip backward or forward. When this flooring is very badly torn and not properly repaired within a reasonable time there is a sagging of the vaginal walls which bring down with them the walls of the rectum or the bladder, and in the worst cases both. This is frequently the cause of constipation and bladder trouble. In fact, the combination of ills resulting from neglected lacerations is the cause of severe backache and other troubles from which so many young married women break down, become nervous wrecks, and grow old before their time.

During pregnancy the abdominal muscles naturally become stretched. This is caused by the enlarging fetus, which crowds and distends all the abdominal contents.

In women whose muscles are healthy and firm the abdomen usually returns to normal shape after childbirth, but in those who have weak, soft muscles and those who have frequent and rapid pregnancies, with no time for recuperation between, the muscles are apt to remain permanently soft and flabby, resulting in a large abdomen. Sometimes a separation of the central muscles may occur, causing rupture.

The difficulty or ease with which a child is born depends chiefly upon the following: the size of the bony pelvis, the rigidity or flexibility of the fibrous bands that hold the bones together, the strength of the contractions of muscles of both abdomen and uterus, and the size of the child. If the child is fairly small and compares favorably with the size of the bony pelvis, if the ligaments and muscle lining of the pelvis are soft and flexible, then everything is favorable to a normal and comparatively easy confinement. On the other hand, if the pelvis is small, the muscles and ligaments rigid, and the child large in proportion to the size of the pelvis (which does not necessarily mean an over-large baby),

labor and delivery are correspondingly more painful and difficult.

The muscular contractions of the uterus also play no small part in the propelling forces that usher the child into the world, as it is the contractions of the muscles of the uterus that force the child downward toward the neck of the uterus. It is also these contractions that cause the first labor pains, which indicate the *first stage of labor*, usually the most painful stage. As the uterus lies between the rectum and the bladder, both of these should be empty at this time, as a full rectum and bladder pressing against the uterus from opposite sides make a strong resistance to the advancing child. During this first stage of labor it is a mistake for a woman to strain; it does no good and merely adds to her exhaustion. It is at the *second stage of labor*, during which the child passes through the vagina to the outside, that the contractions of the abdominal muscles play an important part, and straining helps. This is a less painful stage. The *third and last stage of labor* is when the placenta, or afterbirth, is expelled.

II

DEVELOPMENT OF THE NEW LIFE

CONCEPTION. As has been said, in the mature woman, or at the child-bearing age, every twenty-eight or thirty days the ovum bursts from its capsule, or cell, and escapes from the ovaries and commences to work its way toward the uterus, either to become fertilized or to be cast off. The union of the ovum, which is the female element, and the spermatozoon, or the male element, is called conception. Without the union of these two elements the child cannot develop. Just as an unfertilized hen's egg cannot develop into a chick, so an unfertilized human ovum, or egg, cannot develop into a child. Life is present from the time of conception, which is the instant these two elements meet, and to destroy this life is as much

feticide as the destruction of the child in the later months of pregnancy, when it is perfectly formed. Fertilization may take place in the tube or in the uterus. In either case the fertilized ovum is finally conveyed to the hollow of the uterus, where it attaches itself to the lining, or mucous membrane, of that organ and there begins on its steady growth.

By the end of the *first month* the fetal structures can be recognized. Heart, liver, and kidneys are being formed, and it is thought that the heart beats at the third week. The embryo (as it is called until it assumes a distinctive shape) is about one-third of an inch long.

During the *second month* the bones begin to form, eyes, ears, and nose are distinguished, and the external genitals are apparent, but sex cannot be determined. The outlines of hands and feet appear. The embryo measures one and a quarter inches in length and weighs about one-sixteenth of an ounce.

By the end of the *third month*, or twelfth week, the embryo is three and a quarter inches in length and weighs about four

ounces and a quarter. The external parts are distinctly formed, the fingers and toes are separated, eyelids cover the eyes, and lips close the mouth, and for the first time it fills the entire cavity of the uterus. Fetal movements commence, though rarely discernible by the mother.

By the *fourth month* the embryo has assumed such definite shape and characteristics that it is called the fetus. It is about five inches in length, weighs about eight ounces, and sex is clearly defined. If miscarriage occurs, it may live for some hours.

At the end of the *fifth month* the fetus averages from eight to nine inches in length, and weighs seventeen ounces. Heart-sounds may be heard through the abdominal walls on careful examination by a physician. Hair and nails begin to develop. It is early in this month that the mother usually feels movements. If born during this month it may breathe, possibly cry out, and live several hours.

The *sixth month*, or twenty-fourth week, the length of the fetus is about twelve inches. It weighs between one and one-

half and two pounds; there is hair on the head; there are eyebrows and eyelashes. The umbilical cord, which at the second month was barely an inch long, now measures fourteen inches, and the baby begins to grow fat. If born at this age it has been known in exceptional cases to live two weeks, but usually dies in a few hours.

During the *seventh month* the baby measures from fourteen to fifteen inches and weighs from two and one-half to three pounds. Babies born alive at this time rarely live, but the nearer they approach the full term the greater the chances are.

At the *eighth month* the length is about sixteen and one-half inches; weight, three and a half to four pounds. A child born now may live, with care.

The *ninth month* the length is about seventeen inches; weight, about six pounds. If born, the child will live, with proper care.

At the end of the *tenth month*, or forty weeks, which is full term, the length of the child is from nineteen to twenty inches, and the average weight seven to seven and a half pounds. Some full-term babies weigh ten pounds; higher weight than

this is rare, and is usually guessed at or is false. A baby at birth should be fairly plump, its skin pink, toe-nails and finger-nails fully formed, and extending slightly below the tips. Its eyes should be open. The umbilical cord should be about twenty inches long.

Impregnation of the ovum usually occurs in the fallopian tube, and at once the wonderful changes commence. The united or merged male and female element, or egg, immediately divides in half, these halves are again divided, and these subdivisions keep recurring until the yolk is a mass of cells that are going to form the different organs, skin, hair, nails—in fact, every atom that goes to make the body complete. In normal pregnancy this mass of cells finds its way to the hollow of the uterus, where it attaches itself to its membranous lining. During the first three months the embryo is inclosed in a shaggy shell, called the chorion, which somewhat resembles a chestnut-burr, with small thread-like ducts on its exterior, full of blood-vessels. After the third month the greater part of these ducts or loops

become thin and glistening and form with another stronger membrane a bag containing a watery fluid, in which the child floats. The part of the chorion that remains is firmly attached to one side of the upper part of the uterus; it increases in thickness, and becomes almost circular in shape; this portion is now called the placenta, full of loops of blood-vessels, which dip into the depressions of the lining of the uterus like fingers in a mass of dough. The fetus is nourished in this way until full grown. It receives its nourishment and gets rid of its waste matter through two arteries and one vein, which run through the umbilical cord, attached at one end to the child's navel, where they are continuous with the fetal circulation, and at the afterbirth at the other end, which is separated from the mother's circulation by a thin membrane. From this it will be seen that at no time during pregnancy is there any direct connection between the circulation of the mother and that of the child. What interchange of food and waste substance there is between the two is by absorption only.

The fluid in the membranous bag in which the child floats is called the amniotic fluid. It keeps the bag distended, making room for the child to grow and move. It also protects the fetus against injuries, caused by blows on the mother's abdomen or by falls. The impact, being transmitted through the soft uterine walls and the amniotic fluid, loses most of its force before it can reach the fetus. At full term this fluid is usually about a quart, and its escape is what is known as the "breaking of the waters." When this fluid is scanty, or has escaped prematurely, the birth is called a dry one, and is usually more difficult, as the canal is not as well dilated as though the water remained to act as an opening force when the first labor pains press the child's head downward. If the bag does not rupture or break, as is sometimes the case, it comes away with the child, the membrane forming a *caul*, or *veil*, with which some supposedly lucky babies are born.

During the early months of pregnancy the fetus may assume various positions in the uterine cavity. But by the beginning

of the last month it usually takes its permanent position, lying vertically, with its head pointing downward, the head and back curved forward, the chin resting on the chest. The legs are drawn up on the abdomen, and the arms are crossed on the chest.

The following changes take place in the mother's generative organs. The uterus, in order to provide nourishment for the growing fetus, receives a greater supply of blood, and from a small body weighing one or two ounces it grows until at full term it weighs about two pounds. Its length increases from two and three-fourth inches to approximately fifteen inches; also its neck becomes slightly larger, but not in proportion to the other parts. The walls become thicker and softer from the added blood-supply; and the opening, or mouth, becomes larger, especially toward the later months. The vagina becomes thicker, longer, and softened. Congestion causes it to assume a violet or bluish color, and it is covered with a larger amount of secretion. The vulva also shows the effect of the added blood-supply and becomes

thicker and deeper in color. In the later months of pregnancy the veins of the vulva are much enlarged from pressure, or even become varicose. The ligaments of the pelvis become softer and more movable.

The duration of pregnancy is about two hundred and eighty days, counting from the first day of the last menstrual period. A quick method of getting the approximate date is to count backward, from the first day of the last menstruation, three months, and add seven days, or count forward nine calendar months and add seven days. Either way, this is as near the date as can be calculated. In about one in twenty it comes on the exact date, and in more than one-half it comes within a week of the date, usually within a few days. Confinement reckoned from the quickening is not to be depended upon, but is valuable as a guide to the possible date, when a nursing mother becomes pregnant without a return of the menstrual period.

III

THE SIGNS AND DISORDERS OF PREGNANCY

THE early signs of pregnancy are so well known by many women that they can usually make a diagnosis with more than a fair amount of certainty. These well-known signs, however, are merely probable ones; the only positive signs are said to be, first, when the doctor can distinctly feel the outlines of the child's body through the abdominal walls; second, the actual birth of the infant itself. It is not unusual for a woman in her anxiety to become a mother, or through fear of becoming one, to imagine that she is pregnant, especially if for some unknown cause her menstrual flow has ceased for a time. Sometimes she will even go through the entire nine months, confident that all the well-known signs of pregnancy have

been hers. These cases, however, are not common.

The common signs of pregnancy, and those which are usually recognized as being a safe guide, are, first, *the cessation of the monthly periods*. If a woman has always been regular in this respect, and if there is delay or cessation at the time when the flow is due to appear, there is good reason for her to suspect the probability of pregnancy. It may be well, however, to mention here some of the things other than pregnancy that may and do occasionally cause a cessation of the monthly periods. These are cold, change of climate (this frequently causes the menses to cease for months or even as long as a year), over-fatigue, strong emotions, general debility, excessive desire to become pregnant, or fear of becoming so; also certain diseases, as anemia, pneumonia, dysentery, diphtheria, ovarian and specific diseases. Under the usual conditions when a woman misses two successive menstrual periods she may feel fairly positive of her condition. Then there are times when a woman menstruates, or apparently does so, during

pregnancy, and the condition is not suspected until "quicken" makes the fact known. While this condition does not always indicate danger, it is best to consult a physician.

About the beginning of the second month the breasts become tender and somewhat larger; they begin to feel heavier, and often beat and throb. The nipples grow larger and more prominent, the pigmented or colored circle around them becomes deeper and, as time goes on, broader. The depth of color varies according to the complexion of the woman. It grows only slightly deeper in blondes, much darker in brunettes, and really black in negroes. The veins of the breasts become more prominent. Sometimes as early as the third month, but usually later, there is a watery secretion found in the breasts, which is called colostrum, and is frequently so abundantly secreted that it flows spontaneously from the breasts. To a mother who has recently nursed her child these changes mean nothing, as milk may remain in the breasts for some months after weaning. Occasionally there

is a lack of gland-tissue in the breasts. In this case the breasts do not develop, and there is a deficiency or entire lack of colostrum and, later, of milk.

The Bladder. At about the time the breasts begin to change the bladder also shows signs of irritation. This is caused by the gradually enlarging uterus, which lies between the rectum and the bladder, pressing on the latter and making it impossible for that organ to hold the usual amount of urine. Hence the necessity of emptying the bladder frequently. Also at this time the bladder and the tubes leading from it, as well as all the pelvic organs, have an increased blood supply, which has a tendency to cause a burning or scalding sensation before and during the passage of urine. This is not a sign of kidney trouble, as many women fear. About the end of the third month, sometimes a little later, the uterus rises in the pelvis, which relieves the pressure, and these annoying symptoms disappear. They return, however, when the uterus, in the latter part of pregnancy, again sinks low down in the pelvic cavity. This usually occurs

from two to four weeks before confinement.

Morning sickness, or vomiting, is a most disagreeable and in many cases a most distressing symptom of pregnancy. It occurs early and lasts usually until the end of the third month. Unfortunately, this symptom does not always confine its activity to the morning; frequently the attacks occur at night, and occasionally at intervals during the entire day. This will be discussed more fully in another chapter.

Another early and usual sign experienced by many pregnant women is a general disturbance of the digestive organs, which comes in more forms than one. It may be lack of appetite; hunger, with a distaste for food or for the odor of cooking; or an unnatural craving for certain things. Women may also suffer from so-called heartburn and flatulency. These, however, are minor disturbances, and do not occur as frequently as morning sickness.

Abdominal change is another significant sign of pregnancy. First comes the increase in size of the abdomen. During the first months this is not particularly notice-

able. The navel, which naturally is depressed, begins to rise level with the surface of the abdomen, or it may protrude considerably. A faint dark line appears, extending from the navel downward; this becomes darker as pregnancy progresses. Later there appear on the abdomen fine, white, irregular lines, which are caused by the unusual stretching of the skin; the skin, too, frequently becomes dry and scaly. From the end of the fourth month there is a steady increase in the size of the abdomen, usually varying from three-quarters of an inch to two inches or more each month.

The first sign of life or movement of the fetus is called *quicken*ing, and is one of the surest "probable" signs of pregnancy. While there are undoubtedly feeble movements before the mother is conscious of them, they are not usually felt before the sixteenth week, although women who have had children are more sensitive to the movements, and some claim they have felt life as early as the fourteenth week. The first signs of life are invariably likened to the fluttering of a bird held in the hand,

and this sensation is frequently accompanied by a feeling of faintness. Women pregnant for the first time are sometimes not conscious of life before the eighteenth or twentieth week. The movements usually increase in liveliness and strength as time passes, much to the discomfort of some. Malnutrition of the mother is said to stimulate the child to greater activity. When this is great enough to disturb the mother's rest at night a drink of warm milk, malted milk, or cocoa will usually quiet the activity and produce sleep in the mother.

It is not unusual for the fetal movements to apparently cease or remain quiet for days or even weeks, but this need not necessarily be the cause of anxiety, even if they have previously been vigorous. Many women when this condition occurs fear the child must be dead, yet later bring into the world a healthy living child. It is best, however, to allay worry by having a physician listen for the fetal heartbeats, a sure sign of the child's vitality.

While pregnancy is a physiological and natural process and the organs of genera-

tion are simply fulfilling the purpose for which they were intended, there are, nevertheless, certain disturbances incidental to this period from which many women suffer. Most of these are due to the pressure of the enlarging womb on the neighboring organs and blood-vessels, and many of the ailments require no treatment other than simple hygienic care. All women do not suffer from them; many women go through pregnancy in apparently better health than is usual for them. Accidental illness which one may contract at any time should not be attributed to this condition.

Nausea and vomiting occur in about fifty per cent. of the women who are carrying a first baby. It is less frequent in women who have previously had children. It may appear as early as the first week, but more often comes about the time when the monthly period first fails to appear, and it is likely to continue with more or less severity for three months or until the time of "quickenings." There is a popular belief that a "sick pregnancy" indicates an easy confinement. As far as labor is con-

cerned, the presence or absence of nausea has no influence on it whatever. As the nausea and vomiting occur more often in the morning than at other times, it is commonly called morning sickness. Women who are nauseated or vomit in the early morning can usually eat a good breakfast and experience no further or very little trouble during the rest of the day. There are others who are rarely sick in the morning, but may be affected at any time during the day, especially after meals. These cases, however, are not numerous. There may be simply nausea with retching, or actual vomiting of mucus, stomach secretions, or bile. Ordinarily, enough food can be eaten and retained, so that nutrition does not suffer. When nausea and vomiting persist most of the time and are severe enough to interfere with proper nourishment, or when they persist beyond the fifth month, the condition is not normal and a physician should be consulted.

Among the things thought to contribute to this condition are: inflammation and displacements of the uterus; disease of the ovaries; irritation of the uterine

nerve, due to expansion of the uterus; previous stomach trouble; eye-strain and coitus at this time. Lately it has been suggested that the condition is due to a mild auto-intoxication, which later corrects itself. It is not always a simple matter to control the nausea and vomiting of pregnancy, but when the trouble is not unusually severe simple means will often be found more helpful than recourse to drugs, which should never be taken without the advice of a physician.

In the first place, avoid, when possible, the conditions that contribute to cause nausea. Do not eat rich and indigestible foods or foods that are known to disagree with you. Drink enough water to cause the kidneys to act freely; bathe frequently; take some exercise in the open air every day, and see that there is a daily movement of the bowels. Simple remedies said to be excellent in warding off morning sickness are a cup of hot bouillon, chicken, mutton, or clam broth, or strong clear coffee taken an hour before rising in the morning, the patient remaining quiet afterward. A glass of milk kept at the bedside and occa-

sional sips taken between midnight and morning is also good.

During the day take a sandwich consisting of raw, scraped beef, spread rather thickly between two very thin slices of dry bread; the yolk of a hard-boiled egg; a little ice-cream, and sometimes a little fresh, crisp popcorn, or a toasted cracker will settle the stomach. When vomiting occurs after meals, instead of eating three heavy meals a day it is well to have four or five light meals consisting of hot broth or a glass of milk and vichy and one of the above-mentioned articles of food. A crisp piece of hot toast may be added if desired. Local treatment may consist in placing a cold compress of cracked ice to the back of the neck. A little cracked ice may also be swallowed from time to time. Hot flannels placed on the abdomen, or a mustard paste on the stomach,¹ often have a good effect. When vomiting is very severe and persistent, and nothing seems to help, it is well to go to bed for a week or two, drink plenty of water, and confine one's self to a

¹ The stomach is situated about where the breast-bone separates.

diet of milk and vichy at intervals of two and a half or three hours. A little cereal may also be taken. The chief requirement is rest.

Constipation usually attends pregnancy, whether there has been a predisposition to it before this period or not. A woman who has never before been constipated will usually suffer to some extent, and one who has been habitually constipated before will be more so than ever. This is caused chiefly by the torpid action of the intestines, or diminished intestinal contractions; pressure from the enlarged uterus helps to cause the condition. Occasionally diarrhea occurs instead of the usual constipation, but this is not common. It is more likely to occur early or late in pregnancy, and is probably caused by some indiscretion in diet or unusual pressure. Constipation is a condition that should not be carelessly overlooked, since bodily waste is increased during pregnancy, owing to the changes that are going on and the added burden of eliminating the child's waste matter, which is reabsorbed into the mother's blood. This makes it important

that refuse should not accumulate and remain in the intestines, as much that is unhealthy in the form of poisons will be again reabsorbed by the mother.

During this period there should be at least one good-sized movement from the bowels every day. If several days or a week are allowed to pass without a bowel movement it causes an additional burden of excretion to be thrown upon the kidneys, which are now working more actively than usual; and to overwork the kidneys is a serious matter. Constipation at this time is the frequent cause of anemia, headache, backache, dizziness, mental dullness, lassitude, fatigue, hemorrhoids or piles, and varicose veins; the latter are always aggravated by this condition. Constipation also causes a tendency to abortion. It is better, if possible, to overcome constipation by careful diet, laxative foods, and habit than to obtain relief by the constant use of drugs, enemas, and suppositories. The first step is to form the habit of a daily movement at a certain time, preferably after a meal, as the muscular contractions of the bowels are more active

then, being stimulated by digestion. Even though there be no desire at that time, repeated attempts daily at the same hour will go far toward establishing success. As most of the waste accumulates in the bowels overnight, the best time to empty them is after breakfast.

A glass or two of hot or cold water on arising in the morning and on retiring at night is an excellent factor in helping to overcome constipation, especially in connection with a laxative diet. The fruits and vegetables more or less laxative are: apples, peaches, pears, oranges, prunes, dates, figs, tamarinds, rhubarb, spinach, summer squash, asparagus, dandelion greens, and most of the early green vegetables. Of the cereals oatmeal and yellow corn meal and graham meal are the best. Bread made from rye or whole-wheat flour, corn muffins, and bran gems or bran biscuits are excellent, especially the latter, which rarely fail to have the desired effect. The bran gems are laxative in that they form the stimulus that removes the bulk of refuse. Buttermilk, lactic-acid milk, kumyss, and matzoon are all beneficial.

When constipation is very stubborn it may be necessary to start with a mild laxative, such as cascara sagrada. This may be given in small doses, from fifteen to twenty drops three times a day, until the habit of regularity has become established. Then gradually discontinue its use by dropping one dose every two or three days until none is taken. Depend upon habit and laxative food. The habit of taking an enema every day is not to be encouraged. The bowels are naturally sluggish at this time, and the more they are relieved by enema the more they will require artificial aid of this kind to obtain results. When the bowels have not moved for several days an enema of soap-suds or oil, or a glycerine suppository, may be necessary in order to start the hardened contents of the bowel.

Flatulency. As the pressure of the enlarged womb prevents the passage of food through the intestines as quickly as usual, there is a tendency for it to ferment before it reaches the rectum. The treatment or prevention consists in overcoming constipation, if it exists, and following the advice

given for heartburn as to food and so forth. Buttermilk or lactic-acid bacteria in tablet form may be used with benefit. Also some of the simple remedies, such as milk of magnesia, soda-mint tablets, or charcoal tablets taken in hot water.

Varicose veins are not common during first pregnancies, but are apt to occur in those that follow. They do not usually indicate anything serious. They are caused from pressure and disappear when this pressure is relieved by the birth of the child, provided the mother remains in bed long enough to restore her circulation. The enlarged veins may occur in both legs, but are usually more pronounced in the right one. There is slight danger of their bursting or breaking down if they are given proper support. Treatment consists in avoiding constipation, supporting the abdomen by a properly fitted band or corset, and keeping off the feet as much as possible. Women who have their own housework to do will be surprised to find how many duties they can perform while sitting. While doing so it is well to elevate the feet on a stool or chair. The best

means of getting relief and support for the bulging veins is by bandaging the legs from the toes to the knee or thigh. Make the bandages of coarse, thin flannel or muslin, four inches wide and seven yards long, cut on the bias or straight. Roll the bandage before applying it. A stocking of light material that laces up the front is now made for the purpose of giving support to these veins, and is much more practical and less expensive than the silk stocking usually worn. It is not necessary to wear either bandage or stocking at night. Sometimes the vulva becomes very much enlarged. In this case a pad, kept in place by wearing a T-bandage, will offer support and relief.

Swellings of the legs and feet are from the same cause as varicose veins, and are not common in first pregnancies. This symptom is rarely alarming, although sometimes most uncomfortable, especially when it affects the entire leg and vulva, as it sometimes does. About the only relief to be obtained is by lying down at intervals or remaining in bed for half a day. A snug bandage also helps slightly.

Hemorrhoids are usually the result of constipation and straining caused by that condition. They are the cause of much discomfort and often of severe pain. They usually disappear after the child's birth. Treatment for this trouble is, first of all, to regulate the bowels and avoid straining. If there is much inflammation bathe the parts frequently with cold extract of witch-hazel, and if the hemorrhoids protrude replace them, using vaseline freely in so doing. An enema consisting of one ounce of witch-hazel and one ounce of cold water is also very good. Medicated salves and suppositories should not be used unless advised by a physician.

Vaginal Discharges. There is frequently a slight vaginal discharge early and late in pregnancy which usually requires no treatment. But if the discharge is profuse and of a yellow-greenish color it is best to consult a physician and have him advise treatment.

Douches are not advisable for any purpose without medical direction. When the conditions are such, however, that a physician cannot be reached or consulted a

woman will have to use her discretion as to the advisability or necessity for a douche, but it should not be used when there is an absence of discharge. When the doctor is not consulted a douche should not be taken oftener than two or three times a week, or, at most, every other day, and only a pint of water should be used. The water should be ninety-eight degrees, not hot, and a teaspoonful of common salt or one of boric acid may be dissolved in it. The bag holding the water should be hung low, as the water should enter the vagina very slowly and gently. The best time to take this douche is just before going to bed at night.

The *decay and loss of teeth* is not as general now as it was, because more care is given to the teeth and mouth than formerly. During pregnancy there is an increased acidity of the stomach and the secretions of the mouth, which has a tendency to cause the teeth to decay. In order to correct this acidity efforts to overcome the indigestion which causes it should be made. The mouth should be kept very clean and free from particles of food. The

teeth should be carefully brushed at night and in the morning, and after each meal the mouth thoroughly rinsed, using a half-glass of water with either a teaspoonful of milk of magnesia or a quarter of a teaspoonful of bicarbonate of soda in the water. The mouth should also be well rinsed after vomiting. It was formerly thought that dental work during pregnancy would bring on a miscarriage or cause harelip or deformity of the child. This is not so, but tooth-ache, ulcerated teeth, or abscess of the gums caused by decayed teeth are capable of working much harm by impairing the health and nerves. Married women should keep their teeth in the best possible condition at all times, and as soon as pregnancy becomes known visit a good dentist and have the teeth carefully examined. The filling of teeth or even extraction may be done, excepting in the case of a very nervous and excitable woman, when it is well not to add to the already overwrought condition. If the dental work is extensive or of a very painful nature the sittings should be short and only temporary work done.

Heartburn during pregnancy is quite common, and is due to a very acid condition of the stomach. The acid rises into the throat, causing a disagreeable burning sensation. Preventative measures are the best means of avoiding this trouble. All foods of a rich, fatty, or greasy nature should be avoided. Cream, olive-oil, or excess of butter should not be taken with meals. If taken into the stomach at all it should be at least twenty minutes before the meal. Too much candy or sweets will cause acidity. The "Fletcher" system of chewing the food very finely and thoroughly is an excellent preventative. Heartburn rarely develops if the above suggestions are strictly observed, but if already present it may be somewhat controlled by drinking large quantities of water to dilute the acid, or by taking twenty grains of bicarbonate of soda (in either powder or tablet form) or a teaspoonful of milk of magnesia or lime-water, in a glass of water when the burning sensation is felt.

IV

INCIDENTAL DISTURBANCES OF PREGNANCY

ABORTION, *miscarriage*, and *premature labor* are terms used when pregnancy is interrupted; in other words, when for some cause the fetus is expelled from the uterus before the term of pregnancy is completed. Abortion is the term generally used when this occurs before the fourth month; if expelled between the fourth and seventh months it is called miscarriage; between the seventh and full term, premature labor. The causes of this condition are many, some more significant than others.

The most common causes are inflammation of the lining of the uterus (when this condition exists the fertilized ovum is not as likely to adhere to the sides of the uterus or obtain the proper nourishment),

displacements and malformations of the uterus, kidney poisons or toxemias peculiar to this period, syphilis, and criminal interference. The first mentioned is the most common cause and one that is usually easily remedied by a minor operation called curettage. This consists of scraping away the inflamed surface, which is usually replaced by a new and healthy membrane.

It is well known that many women attempt to produce abortion by measures that are to be condemned. Any act to destroy the life of the fetus by interference is not only criminal, but it deliberately invites ill-health in many forms, principally nervous diseases which not infrequently end in insanity. Other factors which may produce abortion, miscarriage, and premature labor are rapid and successive pregnancies; excessive coitus; obesity; very high altitudes and hot climates, when one is not accustomed to living in such; also tuberculosis, pernicious anemia, and diseases which are accompanied by a very high fever; prolonged and intermittent fever; mental shock, and unusual excitement.

Occasionally abortion seemingly becomes a habit, the women being apparently perfectly healthy and having regular and painless menses. In such cases there is strong reason to suspect internal inflammation or displacements, although some women seem to have what is called an irritable uterus, and abort with the slightest jars of the body, over-reaching, or slight deviation from the usual life or routine.

The symptoms of abortion vary slightly with the month. During the first six weeks of pregnancy abortion may be accompanied with little or no pain, but there may be marked hemorrhage, and, as the ovum is usually cast off intact, it frequently passes off unnoticed. If abortion occurs between the sixth and twelfth weeks, which is a time when it most commonly occurs, the pain and hemorrhage are apt to be more severe. The embryo escapes first, then the membrane. There may be slight chills, backache, and nausea, and if the hemorrhage is very profuse faintness and exhaustion which may last for several days. During the later months miscarriage or premature labor is attended with

more danger. Sometimes operative interference is necessary. The dangers of interrupted pregnancy are frequently greater than those of a normal or full-term pregnancy, as there may be a serious loss of blood or blood-poisoning from a portion or the whole of the membrane being retained, with the possibility of causing inflammation and later displacements.

When there is a predisposition to abortion, and they occur frequently, preventative measures are important and the following rules should be observed. Rest in bed on menstrual dates, as miscarriages are very apt to occur at these times. There should be no intercourse at menstrual dates, and pregnancy should not follow an abortion for several months or a year, as the uterus requires rest. Avoid constipation, as a full rectum and a full bladder are common causes of displacements which cause abortion. Tiring exercises, standing long at a time, riding over rough roads, lifting and over-reaching, are all to be avoided. In case of severe coughing or vomiting a doctor should be called at once for means of relief.

The common symptoms of approaching abortion are slight hemorrhage, backache, bearing-down pains, and a feeling of fullness in the pelvis. Too much dependence must not, however, be placed on the latter symptoms, especially when slight, as constipation will cause them. But whenever there is the slightest discharge of blood with the above symptoms a woman should go to bed immediately in a darkened room, where she can have absolute quiet, and lie on her back with as little change of position as possible. A simple turning in the bed has been known to bring on hemorrhage. If the hemorrhage is slight and ceases with this treatment, it is best for the patient not to get up before two or three days have passed. It is then possible that pregnancy may progress without further interruption; but if after getting up the bleeding should return, she should go back to bed and remain there two or three weeks.

Whenever abortion is threatened it is always best, if possible, to call a doctor immediately. But as doctors are sometimes difficult, if not impossible, to reach, and the condition of the patient is such as

to require quick and strenuous treatment, the following suggestions may prove helpful.

When there is profuse bleeding, the foot of the bed should be raised and cold compresses applied to the lower part of the abdomen and vulva. When the flow diminishes materially the bed may be lowered, but the patient must remain in bed for several days after it entirely ceases. If the hemorrhage continues profusely a very hot douche of boric-acid solution may be given. After miscarriage the patient should receive the same careful treatment as after confinement. She should remain in bed at least ten days; longer if she does not regain her strength. There is the same danger, as after confinement, of displacements and inflammation if she is on her feet too soon.

Tuberculosis and Pregnancy. Women who are known to have active tuberculosis of the lungs should not marry as long as this condition prevails. Neither should girls having had incipient tuberculosis and apparently recovered marry early, as there is little doubt that pregnancy has an un-

favorable influence on such cases. The nine months of the waiting period are a drain on the system, and the loss of blood, shock, and exhaustion incident to labor cannot help but impair the vitality and more or less lower the powers of resistance. Frequent pregnancies are apt to stir up an incipient or dormant tuberculosis into an active and progressive one. Children born under these conditions are usually delicate. Not that they inherit tuberculosis. This they rarely do, but they inherit a lack of resistance to this disease as well as to diseases in general. A mother with active tuberculosis should not nurse her baby, as nursing might subject it to direct infection through her.

Toxemia. During the process of digestion certain poisons are formed in the body, which are eventually carried to the liver to be purified into non-poisonous elements, which the kidneys throw off. When the liver does not perform its functions perfectly these poisons are supposed to collect in the blood and cause symptoms known as toxemic. During pregnancy, for some reason, the liver does not perform its

functions as a clearing-house for these poisons as well as usual, and the tendency toward toxemia increases, and is helped along by constipation, lack of exercise, and indiscretions in diet. These hinder the free excretion of body waste and throw more work upon the kidneys.

The early symptoms of mild toxemia are nausea and vomiting, constipation, dizziness, perverted tastes, and so forth. Careful attention to diet, bathing, exercise in the open air, keeping the bowels regular, and drinking plenty of water will help dispel these symptoms and prevent them from becoming more serious. The more serious symptom of toxemia is pernicious vomiting, which becomes incessant and so pronounced that the mother's health is undermined from lack of nourishment. Every means possible should be taken to relieve this condition, such as rest in bed, with only liquid food in small quantities, carbonated waters, mustard paste applied to the stomach at frequent intervals, free purging of the bowels, washing out the bowels with warm salt solution (using two teaspoonfuls of salt to a quart of water),

and drinking large quantities of water, that it may dilute and carry off the toxins or poisons in the system. When all else fails pregnancy may have to be interrupted.

Eclampsia and *convulsions* are the most serious symptoms of toxemia, but are, fortunately, not common. The warning symptoms are headache, dizziness, buzzing in the ears, pain at the pit of the stomach, spots before the eyes, vomiting, and a feeling of excitement or depression. The preventive treatment is the hygienic precaution already mentioned. Women who have chronic or acute kidney trouble should be carefully watched by their physicians from the beginning to the end of pregnancy. Sometimes there is an absence of pronounced symptoms of toxemia; at other times many of the symptoms are present without apparent toxemic infection. In such instances the only means of determining the presence or absence of these poisons is by an examination of the urine. If the mother has the symptoms of toxemia and an analysis of the urine shows no indication of poison her relief of mind is surely recompense for taking the precaution.

If toxins in the form of urea or albumen are found the condition in most cases can be overcome by treatment and diet, and her precautions will have been the means of saving two lives, her own and the infant's. Occasional examination of the urine of all pregnant women is strongly advised.

V

MISCELLANEOUS

EUGENICS (called the science of improving the human race by better breeding) is still very much in its infancy. At present there are national and international conferences being held on this subject, and from data and statistics that have been and are being collected civilization in general is beginning to realize that it is better to bring a strong race into the world than to save a weak one. The value of the world is not alone in great numbers of babies, but to have a great number of *healthy* babies born. The object of *eugenics*, therefore, is to direct the mating of the physically fit, with the design of rooting out the weakness of ancestry and by so doing influence the offspring.

While many conclusions may be drawn from experiments in mating animals, the conditions which influence men are somewhat more complex and the probabilities are that it may require many years of observation, covering many generations, before any set of rules can be formulated to carry conviction. At present there is a difference of opinion as to whether the strong alone should mate, or whether the weak should mate with the strong, some authorities claiming that strong traits may exist in the weak, that these traits are dormant, and that marriage with the strong will bring them out. All, however, agree that it is wrong for the weak to marry the weak, since their children cannot fail to be weaklings. Notwithstanding the aims of eugenics, there are other outside influences in the molding of man. Hygienics is also a factor not to be overlooked, and it must not be forgotten that deformed and feeble-minded children have been born of parents whose ancestors have been, from a eugenic point of view, all that is desirable as far as could be discovered. Of course, an accident, say of

environment, reacting on the germ-plasm, may account for this.

It is known that a child's inheritance is fixed when the male and female elements fuse at the moment of conception, and that inherited characteristics or traits are carried in the germ-plasm of each parent. But according to some selective process, the laws of which are not yet understood, a part of the germinal cell, which contains these inheritable qualities, is cast off from both ovum and spermatozoon when they ripen. Just what determines which are thrown off and which retained is not known; at any rate, those retained account for the combination of inherited characteristics of the child.

Abnormalities of the child come from an imperfect germ-plasm at the time of conception. These deviations from normal may come as heritance or may be acquired through the influence of some outside factor, such as alcohol or drugs taken to a degree which poisons the system. Or the toxins from acute fevers, syphilis, and chronic inflammation of the organs of generation may affect and change the cell.

Means of Controlling Size of Family. As has been said before, the great need at present is not so much more children as better children. A moderate-sized family of healthy children well cared for and well educated is far more desirable than many weaklings improperly nurtured and educated. Childbirths following too quickly one upon another soon tend to impair the health of mother and child. Abortion is not only against the laws of nature, but is an illegitimate practice forbidden by law and punishable as a crime. It is claimed that women suffer ill-health from abortion more than from all other causes combined; a visit to any hospital or insane-asylum will prove the truth of this statement. That a few women who practise it do escape unscathed is simply a matter of luck, and no one knows who the lucky one may happen to be.

Interrupted or incomplete intercourse is distinctly harmful to the health. "Over-production," in the words of a well-known physician, "not only cheapens the product in the matter of children, but does more—it weakens or destroys the source of sup-

ply." There are one or two resources, however, usually dependable and legitimate, by which the size of a family may be controlled.

A previous chapter describes how once in every twenty-eight or thirty days a ripened ovum leaves the ovary and travels toward the uterus. Usually it leaves the ovary and commences its travels a few days before the menstruation is established. If not impregnated by the male element it may pass away with the menstrual flow or it may not leave until the fourteenth day. After the ovum is discharged the chance of conception is over for the time being, or until the next ovum escapes and starts on its journey. From this it will be seen that in order to avoid impregnation there should be no sexual intercourse for approximately twenty days in each lunar month, leaving about eight days during which it may be indulged with safety. The danger period is four or five days before the menstrual period, during this period, and for twelve or fourteen days after it. Another preventative, fairly reliable, is to wash out the vagina by means of a hot douche imme-

diately after coitus, before the spermatozoon travels far enough to enter the uterus. The water should be hot, and a teaspoonful of boric-acid powder added to each pint of water contributes to its efficacy. The nozzle of a syringe should be inserted well into the vagina, and the bag containing the water should be hung six feet high in order that the water enter the passage with force enough to thoroughly wash it out.

First Pregnancies Late in Life. Some women do not become pregnant until they are past their thirty-fifth year, either through marrying late in life or apparent sterility early in life. In some cases barrenness is due to displacements, inflammation, tumors, or malformations. These corrected, pregnancy takes place. Sometimes the cause lies in the husband's inability to procreate. In this case the wife may be sterile in a first marriage and become pregnant in the second.

Many women who have passed their thirty-fifth year without having experienced pregnancy look upon it now with fear as to the outcome, but they may find comfort and courage in the opinion of one of

the best authorities on obstetrics, who states that there is no sound basis for the tradition that the neck of the womb, or cervix, is always rigid in women not young who conceive for the first time. He also states that the only influence of age upon first pregnancies is that the first stage of labor is slightly prolonged, and it also slightly increases the chance of forceps being used in delivery.

It is well for a woman under the foregoing conditions to place herself in the hands of a competent physician and carefully observe the rules of hygiene suggested in the preceding pages. If she lives far from a doctor it would be well to make arrangements to enter a sanatorium for her confinement. The only unfortunate circumstance an older woman may experience is in nursing her baby. Her breasts may not readily respond to the stimulus for milk, and she may have to feed the baby by artificial means.

It is not at all unusual for many women, during the early months of pregnancy, to show much *nervous irritability*. Women who have heretofore been amiable and of a

cheerful disposition become peevish, disagreeable, and frequently apprehensive and melancholy. They are also hysterical and cry on the slightest provocation. This is not to be wondered at when one considers the unusual changes the system is undergoing. All the functions are doing extra work. New tissues are actively growing, and glandular secretions have greatly increased. Happily, nervous symptoms usually subside as pregnancy progresses and the woman becomes more accustomed to these new changes. They disappear entirely with the relaxation that comes with confinement.

Occasionally the reverse conditions occur. Women who previous to pregnancy have been of nervous temperament now become happy and cheerful. During this period of nervous strain it is well for a woman, for her own sake, to make a brave fight to overcome any nervous tendencies; nevertheless, she is not in a condition to put up as strong a resistance as she might desire, and it is only just that she should receive every consideration and encouragement from her husband and those about

her. Patience and kindness go far to relieve the mental strain at this time.

Pruritis, or *itching*, is not uncommon. When the itching is not confined to any particular location, but is general, it may be due to some disorder of the kidneys or liver; there may be too much sugar in the urine, or possibly, it is thought, the system may contain some poison peculiar to pregnancy. When this condition is general it is important that on no account should a day pass without a full movement of the bowels. The urine should be examined, and water drunk freely. Plenty of fruit should also be eaten, and baths with washing - soda in the water should be taken. Use one pound of the soda to an ordinary bath-tub of water. When the itching is local it may be caused by leucorrhea, ulcers of the rectum, or piles. Bathing the parts frequently with olive-oil, washing-soda solution, or a saturated solution of boric acid will give relief. A good toilet - powder will also have a soothing effect when applied.

Inverted Nipples. If the nipples are naturally flat or inverted some effort should

be made to overcome this defect. One method is to heat a good-sized bottle, by repeatedly pouring hot water into it, until thoroughly warmed, then pour off the water, and place the mouth of the bottle over the nipple. This draws it out. A piece of cloth wrung out of cold water and wrapped around the bottle hastens the effect of the treatment. Another way to draw out the nipples is to take a common clay pipe, smooth the edges of the bowl, and attach a short piece of rubber tubing to the stem. Place the bowl over the nipple and the tubing in the mouth and draw on it, which will bring the nipple out. Either treatment may be tried two or three times a day for a few minutes with excellent results. In spite of treatment, however, the defect sometimes cannot be remedied.

The Breasts. If the breasts are not properly protected and kept warm they may become very painful at this time. When there is pain it is advisable to cover them with a thin strip of flannel.

Sleeplessness during pregnancy may be caused by nervousness, constipation, toxemia, and many minor discomforts common

to this period. This trouble is sometimes overcome by regulating the diet. A warm bath, or a drink of milk or of hot malted milk just before going to bed, will often have a soothing effect and induce sleep. Drugs that produce sleep should not be taken, as the drug habit is very easily formed when one is in this condition, and very difficult to overcome at any time.

Cramps in the legs and back are not serious, but are sometimes the cause of much discomfort. They are caused by pressure of the uterus on the nerves of the leg or back, as the case may be; but cramps of the legs are much more common, and occur more often toward the end of pregnancy, when the child's head drops down into the pelvis. Cramps are also frequently accompanied by a numbness or tingling sensation. This trouble is best relieved by lying on the back with the hips raised, and by placing a pillow under them.

Pigmentation, or liver spots, appear quite frequently during pregnancy. These yellowish or brown spots, the size of a dime or larger, may appear on any part of the body, but more frequently on the face, chest,

breasts, and abdomen. These spots when they appear on the face are sometimes called the "mask of pregnancy." They are due to a deposit of iron in the skin when there is more iron in the blood than is required by the growing fetus. In fact, they are looked upon as one of the signs of pregnancy, such as the darkened area around the nipple, and the line down the center of the abdomen. Treatment will help very little, if at all. Certain outward applications may make the coloring slightly lighter. The spots usually disappear after the child is born.

Falling of the hair is not so common during pregnancy as afterward. It occurs particularly in women of nervous temperament. An iron tonic, preferably one prescribed by a physician, a shampoo every three or four weeks with tincture of green soap, and scalp massage every few days with a good tonic, will usually cause the hair to grow in thickly again.

Longing and craving, or *pining*, as it is sometimes called, is an unnatural craving for certain kinds of food or abnormal desire for unusual things to eat, such as

chalk, raw starch, slate-pencils, pickles, vinegar, raw vegetables, sweets, and other things. The desire for certain foods may be indulged in to a limited extent, provided they are nutritious and not difficult to digest; otherwise these longings should not be gratified. Appetite for the unusual should be overcome as quickly as possible. This condition is almost entirely a nervous one which ceases at the birth of the child. Mental diversion and rigid self-control, with the usual careful attention to diet, will overcome the craving to a great extent. There is a popular superstition that if the mother's cravings are not satisfied the child will be marked. Of course this is nonsense.

Loss of appetite may sometimes be complete, but more often it takes the form of a dislike or disgust for certain kinds of food. The cause also is a nervous one, due to extreme sensitiveness of the nerves of smell and taste. To overcome this choose, as far as possible, food that is appetizing. Sometimes a bitter tonic, such as extract of malt, will overcome this trouble.

Pains in various parts of the body

are frequent during pregnancy—backache, headache, pains in the sides, the face, and so forth. These pains are usually due to rheumatism or neuralgia, which is very apt to appear at this period. They are sometimes very stubborn and only disappear after confinement, but they are greatly helped and sometimes vanish completely if the bowels and kidneys are kept in good working order.

Displacements. Forward displacements are quite common, and are one of the causes of painful menstruation; this condition usually corrects itself when pregnancy takes place. In fact, pregnancy is one of the cures for displacements of this nature. Backward and downward displacements are the frequent causes of miscarriage, inflammation, and sometimes of sterility. These displacements should be treated by a specialist, if possible.

Shortness of breath is rather uncommon early in pregnancy, and when it occurs during the early months it is caused by indigestion and gas, which may be overcome by dieting. This trouble is more common during the later months, and is caused by

pressure of the womb on the diaphragm. It is also aggravated by nervousness and flatulence. The symptom is more uncomfortable than alarming, and, since it is usually worse when lying down, some relief is obtained by being propped up with pillows. The clothing should be worn loose. Relief comes when the uterus sinks back into the pelvis, which is from two to four weeks before confinement.

Excessive Saliva. This occurs occasionally with morning sickness. There may be only a slight but constant dribbling of saliva, or it may be very profuse and annoying. This may be caused by nervousness or by indigestion. Attention to general health and to the diet and fresh air as suggested for nausea will be found helpful. Applications of heat to the cheek, near the ear, and frequent rinsings of the mouth with a saturated solution of chlorate of potash will give temporary relief.

Maternal Impressions. From time immemorial there has been a tradition that the unborn child is influenced by the mother's thoughts, emotions, and surroundings, and that it is marked by the mother's see-

ing unusual sights, deformities, and so forth. As yet there is no scientific proof that this is true, and the proofs offered of markings are merely those of coincidence. The favorite fallacies are that a strawberry-mark is caused by the mother's craving for strawberries; that moles and hairy patches are the result of the mother's fright over seeing a hairy animal, especially a mouse; that harelips and other deformities are caused by witnessing an accident. As every mother can recall some disagreeable physical or emotional experience during her pregnancy, and as no mother can hope to escape them, if these fallacies were true most children would be marked. As the child is fully formed by the end of the second month, it is impossible for any event that happens later to change it, and events that may happen before the second month are usually before most mothers are conscious of or sure of their condition. It is quite within the limits of belief, however, that a woman may injure the fetus by attempts at abortion before the third month, thinking that life does not begin before quickening is felt.

Painless Childbirth. Notwithstanding numerous advertisements to the effect that childbirth can be rendered painless by the use of certain drugs or by adhering to certain diets, there is no such thing as painless labor or delivery, except when a mother is put under the influence of an anesthetic, and this is not always desirable or safe. The pains of a normal childbirth are due to the contractions of the uterus. These are necessary, as they furnish the propelling force that pushes the child through the birth-canal into the world. As a rule, the stronger these pains the more rapid the birth. When the muscles of the uterus are weak the pains are weaker and birth delayed. Sometimes it is necessary to help by the use of instruments.

A proper amount of exercise and a careful diet helps materially to make labor and childbirth normal and as nearly painless as possible. Certain books suggest diet and the use of oils to render labor painless. The diet is usually a dangerous one to follow. The use of oils externally does no harm, but it has no particular advantage other than adding to the mother's com-

fort for the time being by keeping the skin soft.

Patent medicines should be avoided, as they frequently contain alcohol or narcotics, which may have a bad effect. Drugs and herbs advertised for this period are usually worthless, and may do harm by causing nausea. These should not be taken without medical advice.

VI

THE HYGIENE OF PREGNANCY

PREGNANCY is a perfectly natural condition. It is also a period in a woman's life when she is undergoing most important changes; and while she should in no sense consider herself an invalid, it is a time when she can less afford to disregard the laws of health and hygiene than at any other period of her life. In order to carry her baby to full term, have a normal confinement, and give birth to a healthy living child, also to nurse it, she should endeavor to live as healthy a life as possible. The unavoidable complications of pregnancy are comparatively few.

Exercise. Ordinarily there are no forms of exercise or home calisthenics which are to be recommended for this period; exercises previously practised should be

stopped and not renewed unless advised by a doctor. Massage should not be given to the abdomen, nor should it be rubbed hard, as this might start uterine contractions. If a woman has been living a normal, healthy life as regards exercise, diet, and habits, there is no reason why she should make any radical change in her mode of living. There is a strong tendency in many women, especially if young, to indulge in sedentary habits during pregnancy. This is wrong; there should be occupation for both body and mind.

Light housework is to be recommended as an excellent form of indoor exercise; it also diverts the mind. Hard work, such as large washings, scrubbing, much sweeping, lifting of heavy objects, carrying pails of water, and so forth, should not be attempted. Sometimes heavy domestic work is done without apparent harm, but it is attended with great risk, and if continued through several pregnancies usually ends in a breakdown and invalidism. Walking is one of the best kinds of outdoor exercise; walks of moderate length may be taken every day with decided benefit. Next to

walking is a drive over smooth roads in a carriage or automobile with good springs or a ride in a trolley-car. If, however, riding in any conveyance causes backache or a feeling of heaviness at the lower end of the spine it should be given up. Out-of-door sports such as riding horseback, tennis, golf, skating, swimming, and rowing or paddling should not be indulged in. They are all more or less dangerous, as is anything that calls for sudden movements, jumping, jars to the body, also stretching. Dancing, running a sewing-machine unless it has a hand attachment, pedaling an organ or piano-player, reaching to light the gas when the fixture is beyond convenient reach, lifting things from a high shelf, trying to raise a window that sticks, are all things to be avoided during pregnancy. Ordinary reaching or sleeping with the hands above the head is harmless. Household work, walking, and other forms of exercise should not be carried to the point of fatigue.

Fresh air is especially necessary, as when it is breathed into the lungs it purifies the blood, which helps eliminate body waste.

Sometimes a woman is handicapped in her attempt to get into the fresh air. This may be during the early months when nausea and vomiting keep her in the house or from going far. Or it may be later in pregnancy when her increased size and heaviness make it inconvenient for her to walk or take much exercise. Sometimes a woman's house duties are so confining and tiring she cannot go out every day. Under these circumstances fresh air is more necessary than ever, and plenty of outside air should be let into the house. This is an easy matter in summer, when windows and doors are open and one can sit on the porch or lie in a hammock under the trees; but in winter, when the house is tightly closed, to get fresh air is a more difficult matter; the rooms are apt to be close, stuffy, and overheated, especially the kitchen or the general living-room.

In these rooms a window should always be lowered from the top, if only for an inch or two, and in order to secure good circulation a window-board should be placed under the lower sash. It is well to spend an hour or two every day in a chair or on

the couch in front of an open window, in the sun if possible. One should be well wrapped, and the feet kept warm by a hot soapstone or some such thing. If a nap can be had at this time, so much the better. There should always be an open window in the sleeping-room at night.

Recreation is as important as exercise and rest to the pregnant woman. Her mind especially needs diversion and pleasant occupation. It is good for her to continue her social meetings, and to go to church and to interesting lectures, talks, and concerts when opportunity affords. Her reading should be light and amusing. The kind that diverts the mind is much better than that which requires mental effort.

Rest. All women who are pregnant require a certain amount of rest. Early hours should be kept; it is desirable to have from eight to ten hours' rest at night. Even if all this time is not spent in sleep the rest in bed is beneficial. There is also at this time apt to be an overpowering inclination to drowsiness and to tire easily. These calls for rest should be obeyed, especially when there are what is called

pressure symptoms, such as swollen feet, enlarged veins, palpitation, and shortness of breath. A short rest occasionally during the day of a half-hour or so is most beneficial.

Food. The old saying that the pregnant woman ought to eat enough for two has been proved a myth. While an abnormal appetite is not at all unusual at this time, it has been shown that no more food is necessary during the pregnant state than was required to supply the needs before this time. Food taken in excess of the usual amount increases the size of both mother and baby. Women who eat very heartily and exercise little give birth to large children. The diet in general should be one that is nutritious, easily digested, and more or less laxative. There should be three regular meals daily, and it is well not to eat too heartily. Sometimes during the latter months of pregnancy there is a feeling of faintness and craving for food. When this is the case a cup of milk, malted milk, or broth with a cracker may be taken once or twice during the day, between meals or on retiring at night. As the first

process of digestion commences in the mouth, when the food mixes with the saliva, it is well to "Fletcherize," which is to eat slowly, and chew all food so finely that it is practically reduced to a fluid state before swallowing. Tough parts that cannot be so reduced should not be swallowed, but rejected.

By this method the process of digestion is well started before reaching the stomach, relieving it of much unnecessary work. As there is a tendency toward digestive disturbances at this time, it is well to avoid such foods as are known to disagree with one. It is also a good plan to rest for a short time after meals, and not to eat heavy meals at night. An excellent diet consists of meat that is lean and tender; fresh fish or salt codfish may be substituted for meat several times a week if one so wishes; fresh vegetables, fruits, milk, cereals, eggs, and simple desserts.

Among the meats the most nutritious are chicken, beef, mutton, or lamb. Those to be avoided as causing indigestion are fresh pork, veal, goose, and duck. As a rule, meats may be eaten once a day, un-

less there is some complication that makes it necessary to restrict animal food. Vegetables are strongly recommended, as they contain mineral salts needful at this time and aid in overcoming constipation. They are also nutritious. Most vegetables are good, but those of a starchy nature, such as potatoes, corn, and squash, should be eaten moderately. Vegetables that would better be excluded from the diet, as they produce flatulency, are cabbage, Brussels sprouts, cauliflower, turnips, parsnips, egg-plant, beans, radishes, and cucumbers. Ripe fresh fruits—apples, peaches, apricots, plums, grapes, oranges, and grape-fruit—are very good; also dried fruit like figs, dates, prunes, and tamarinds. Fruits act as a laxative, furnish mineral salts, help satisfy thirst, and diminish the craving for sweets. The best time for eating fruits is before breakfast and before going to bed at night.

Most cereals can be eaten at this time, but with the exception of rice it is well not to make them too great a part of the dietary, especially during the last months, as an overabundance of starchy foods, also

sweets, taken by the mother is converted into fat in the child. A large child is not always desirable, especially if the mother is small or if a first pregnancy comes late in life. Rice makes an excellent substitute for potatoes and other starchy foods several times a week during the latter part of pregnancy. As the child draws its nourishment at the expense of the mother's tissues, under normal conditions a mixed diet is best. Extremes in diet are not advisable, and one composed almost exclusively of vegetables, fruits, and water, or cereals is dangerous.

Cravings and longings during pregnancy are not uncommon. They may be satisfied in moderation, provided the food craved is not indigestible or harmful. Abnormal desires for such things as chalk, raw starch, slate-pencils, pickles, and very sour things, or candy to excess should not be gratified, but every effort made to divert the mind and curb the appetite for these things as quickly as possible. This trouble is chiefly a nervous one.

A cup of cocoa between meals is helpful in producing milk. Tea and coffee should

be restricted to one cup of each a day, not strong. Cream should be avoided, except the small quantity used on the cereal or in tea or coffee. Rich foods, fried food, pastries, fresh or hot breads should not be eaten.

Kidneys. Imperfect elimination of certain waste-matter by the kidneys and the liver leaves a residue of waste-matter in the body which causes what is called auto-intoxication, or self-poisoning. This is one of the most dreaded complications of pregnancy. In order to detect these poisons and prevent, if possible, serious consequences, it is necessary that the urine be examined occasionally. During the first few months monthly examinations may be often enough; after the fourth month they should be made twice a month, or more often if there is any indication of poisons.

To obtain the best results the whole quantity of urine passed in twenty-four hours should be collected; from this fill a clean six-ounce bottle and send it to a physician, chemist, or laboratory that has had experience in urine analysis. It is important that the receptacle holding the

urine should be absolutely clean, and scalded well before using and kept in a cool place. In summer a teaspoonful of chloroform added to the specimen will keep it from spoiling. The bottle should be labeled with the name of the patient, the date, and total amount of urine passed in twenty-four hours. The presence of albumen, sugar, and certain acids which may point to serious trouble can only be determined by a chemical analysis. Little can be determined from the appearance of the urine, as the presence of sediment or mucus which can be seen by the naked eye is not at all uncommon or of serious moment. While no woman should miss these examinations if she can help it, to comfort those who cannot have them let it be said that comparatively few women who care for themselves properly at this time have kidney trouble.

During the entire term of pregnancy it is well to drink considerable water, as it eliminates through the kidneys much waste that accumulates in the system. From six to eight glasses of water during the day is not too much. Begin the day

by drinking one or two glassfuls before breakfast, two more between breakfast and the midday meal, two more between this and supper, and one or two the last thing before going to bed. The water should be cool, not iced. Lemonade may be substituted for water two or three times a day if one chooses.

About three pints of urine should be passed in twenty-four hours. If there is less than a quart passed, if it is very dark in color or pink, or a white powdery sediment settles after standing, drink freely of alkaline waters, such as vichy, seltzer, or lithia and weak lemonade without sugar.

Bathing. The skin also has its share to do in eliminating waste-matter. This is done through the small sweat-glands, or pores, of the skin. Since the waste-matter is greater during pregnancy than before, bathing is most necessary, as it removes from the surface of the body the accumulated sediment from dried perspiration. In health the body throws off more than a pint of sweat daily. This is evaporated so rapidly that we are not conscious of it. It is only on hot days or from unusual

exercises, when a much larger quantity is thrown off, that we are sensible of it. Baths not only carry away this dried perspiration, but also dried skin, dust, and germs; they stimulate circulation by bringing the blood to the surface of the body, which helps to excrete the waste.

Tub-baths are the best; when they are not to be had sponging off the entire body with water is the next best plan. The temperature of the water should be as near the body temperature as possible—about 98 degrees. If one is accustomed to cold baths, and reacts well after them, they may be continued with discretion, but they are not to be generally recommended. After a bath the skin should be briskly rubbed with a coarse towel in order to stimulate circulation. Very hot baths or steam and vapor baths are depressing and should not be taken except when directed by a physician. Cold plunges, showers, or baths are likely to produce shock, which is dangerous at this time. Sea and surf bathing is not safe on account of shock if the water is cold, the danger of falls, and the strain of battling with the surf. Sitz-baths

are unnecessary, but may at times be attended with comfort, as when there is itching or irritation from vaginal discharges or piles.

Clothing. In selecting clothing during pregnancy there are three rules to keep in mind. First, that it should be of such material and style as to keep the body warm. Second, that it shall be loose and comfortable, not to constrict any part of the body. Third, that it should be of a style to make the woman as inconspicuous as possible. Warmth is especially necessary during pregnancy, as the slightest chilling of the body tends to check perspiration and throws the work the skin ought to do on the already burdened kidneys. Statistics show that complications of the kidneys are more common during pregnancy in winter than in summer. Loose clothes are necessary because the internal organs of the body are already crowded by the enlarged uterus, and the added pressure of tight clothing on the chest or abdomen prevents full breathing and interferes with the proper expansion of the womb. Tight clothing also exaggerates the contour of the

form and makes a woman's condition much more conspicuous.

During the first three months of pregnancy it is not usually necessary to make a radical change in dress other than to loosen the clothing a little from time to time. It is well to select undergarments of materials that are light in weight but which contain some wool, as wool absorbs perspiration and prevents chilling of the body. Those of a ribbed weave are best, as they are more or less elastic and adjust themselves to the figure with fewer wrinkles than any other kind. Union suits or separate shirts and drawers may be worn, but the latter are preferable, as the lower extremities often require additional warmth, and heavier drawers may be worn when necessary. In order that undervests, drawers, petticoats, and corset-covers may be comfortable and last until the end of pregnancy they should be, at the fourth month, several sizes larger than those usually worn. Petticoats are easily adjusted to the changing figure if made a little large and with a draw-string or tape instead of a belt. Corset-covers should be

loose and adjusted at waist by draw-string. One-piece combination-suits or the Princess style of undergarments are not practical for maternity wear.

It is not well to wear garters that encircle the leg, as they interfere with the circulation and may cause varicose veins. Stockings should be fastened by a side-elastic to the corset or waist, and should not be tightly drawn. Shoes should be roomy and comfortable. High shoes that lace are to be preferred, as they will give support to the ankle. The heels should be moderately low and broad. Narrow, high heels should never be worn, as they throw the body forward, causing backache on account of the strain on the muscles of the back. They may also cause the ankles to turn, and a fall may follow with serious consequences. For outside clothing one-piece gowns are to be preferred to separate skirt and waist, as the latter are apt after a while to gape at the waist-line. Very heavy skirts should not be worn. One-piece gowns and skirts are now made with adjustable arrangement, by which they can be enlarged from time to time as the needs

require. Such garments can be bought from maternity outfitters or made at home from special patterns designed for the purpose.

Corsets. As long as corsets are loose enough and perfectly comfortable there is no objection to their being worn during the early months of pregnancy. They should then be discarded and a maternity corset worn instead. The best maternity corsets are those which support the breasts without much pressure upon them and fit snugly around the hips and under the abdomen, making an upward pressure. These corsets can usually be worn to within a short time of confinement. It should be remembered that corsets of this kind are not worn for the purpose of reducing the figure, but for support and comfort. Some women have never been in the habit of wearing corsets. Where this is so there is no necessity of putting them on now; they will probably be more comfortable without them.

Breasts. The old-fashioned method of applying alum, alcohol, whisky, cologne, tea, or other astringent lotions to the

breasts with a view of making the nipples tough and hard is a mistaken one. This so-called hardening process, if practised to any extent, will cause the nipples to become so dry that they are likely to crack, and fissures form which may become infected and result in abscesses. Sometimes as early as the fourth month there is a discharge from the breasts. As soon as this occurs, whether earlier or later in pregnancy, the breasts should be bathed frequently; if allowed to dry and form crusts the nipples will become irritated and sore. It is best to keep the nipples covered with small folds of clean, old linen or gauze; if the discharge dries on the clothing these places, when dry, become stiff and add to the irritation of the nipples. During the last three months of pregnancy wash the breasts thoroughly night and morning with warm water and Castile soap, after which gently rub with olive-oil, cold-cream, vaseline, or a mixture of lanolin one part and cocoanut-oil two parts. If the breasts become heavy support them with a broad bandage or breast-binder. Sometimes tight clothing

or corsets pressing upon the breasts cause the nipples to become flat. In this case the pressure should be removed and the nipples twice a day rubbed with oil and pulled out.

Traveling. Unless necessary it is best not to take long railroad journeys. Traveling by boat on smooth water is safe, but ocean or lake travel is somewhat risky on account of the possibility of seasickness and the strain of trying to keep in the berth in rough weather. Women who miscarry easily should not travel during the first four months nor during the seventh month; neither is it wise to travel on menstrual dates. When the road-bed is smooth and cars are comfortable, traveling on railroads is usually attended with little danger.

The Marital Relations. It is generally believed by physicians that the marital relations should be restricted during pregnancy, especially at menstrual dates. Neglect to practise moderation in this respect is a common cause of abortion and premature birth.

VII

PREPARATIONS FOR CONFINEMENT

AS soon as pregnancy is assured it is best for a woman to begin preparations for her confinement by finding out from her physician the probable date of her delivery and engaging his services for that event. Then it is well to look about for a competent nurse and engage her, and if possible get in touch with one or more nurses who can be called upon in case of emergency, such as premature birth, when the nurse engaged may not be available.

If one's means allow it is advisable to have the nurse come a few days in advance of the supposed date of confinement. It will be a comfort to the mother to feel that there is an experienced person at hand who will know when to call the doctor and to prepare the room and the patient. While

waiting, the nurse can prepare and sterilize the dressings, as well as make herself useful in many little ways. A nurse is always paid from the time she is engaged whether she is called to the house or not, as it cannot be expected that she should remain idle without recompense.

Cleanliness of the room, the bed, and the patient are most necessary at the time of confinement. The room should be clean, light, well ventilated, and heated if the weather is cold. Hard-wood or painted floors are the most sanitary. If the floor is carpeted the carpet should be gone over with a wet cloth wrung out of a disinfectant. All around the bed the carpet should be covered with several layers of newspaper; over these tack old sheets. The bed should stand out in the room, so that the doctor and the nurse can pass on either side of it, and should face the light if possible. The mattress should be firm, smooth, and not hollow, or sag in the middle. If the springs are not strong or level enough to keep the mattress from sagging a board should be placed across the springs beneath the mattress. An ironing-

board or table-boards may be used if nothing else is available. A single bed or cot is best for confinement, and it is much easier for the doctor to deliver the woman if the bed is raised from the floor a foot or more by placing blocks of wood under the bedposts.

The bed should be prepared as follows: Across the center of the bed stretch rubber sheeting at least one and one-half yards wide and long enough to tuck in on either side; also pin it to the side of the mattress with large safety-pins to keep it from slipping. Over this place the clean sheet, which should be large enough to tuck well in at the sides and both ends of the bed. Across the bed where the hips rest stretch a sheet, folded lengthwise about a yard wide; between the folds of this place a square yard of rubber sheeting, enamel cloth, or several thicknesses of stout paper. This is called the draw-sheet, and must be stretched tightly across the bed and pinned firmly with large safety-pins. This can be removed after confinement, leaving a clean, dry bed for the patient to lie on. The top covering may consist of a sheet or a sheet

and blanket, according to the temperature of the room. One or two pillows may be used, as the patient prefers. The following articles should be ready at the time of confinement:

From one-half to a dozen clean sheets.

One dozen or more sterilized towels for the doctor's use—soft, old ones are best.

Six delivery-pads made of coarse cheese-cloth, filled with cotton or new cotton waste, which has been made absorbent and soft by boiling in water with washing-soda in it. Cotton waste is much less expensive than cotton. The patient's thighs rest on these pads during delivery; as soon as one becomes much soiled it should be replaced by a fresh one.

Five or six dozen sanitary pads for use after confinement may be bought at a moderate cost, or made at home of cheese-cloth filled with cotton or cotton waste. They should be ten inches long, three or four wide, and are held in place by a T-bandage.

Three abdominal binders made of stout

unbleached muslin one and one-quarter yards long and one-half yard wide.

A piece of rubber sheeting or enamel cloth one and one-half yards wide and long enough to stretch across the bed and tuck in. Also a piece one yard square.

One fountain syringe.

One douche-pan.

A cake of soap and a six-ounce bottle of tincture of green soap.

A jar of vaseline.

A piece of linen bobbin or narrow tape one-sixteenth of an inch wide and a yard long for tying the cord.

A pair of sharp scissors for cutting the cord.

A package of squares of old linen or gauze, sterilized, for dressing the cord.

A pound of sterilized absorbent cotton.

A quart of boric-acid solution¹ in a clean stoppered bottle, and two or three small dishes or bowls to hold some of the solution when needed.

A pail or basin, under the bed, to hold the afterbirth.

¹ One teaspoonful of boric acid to one pint of boiled water.

Two clean agate basins.

Two slop-jars.

Two agate pails, one full of very hot water, and one for cold water that has been boiled.

Fifty bichloride-of-mercury tablets, for making a solution of 1-1000. *These are poison and should be labeled poison and carefully guarded as such.*

The making of dressings may be done by the mother at odd moments, or by the nurse if she is in the house. They may be sterilized also at home or at a near-by hospital for a small consideration. Many druggists also keep sterilized obstetrical packages, the expense varying according to the number of dressings required. There are two methods of sterilizing at home—dry heat and moist heat; the latter method is surer. Towels, sanitary napkins, pads, and gauze or linen squares should be tied up in packages of six each, and each package wrapped in squares of unbleached or clean, old muslin, pinned securely, and the nature of its contents marked on the outside with pencil or ink. The small packages may be wrapped together in another

bundle to keep them together. These can be dry-sterilized by putting them in a rather slow oven until the covering is scorched a light russet brown. To sterilize by moist heat use a wash-boiler in which there are two or three inches of water. Take a strip of muslin an inch or two narrower than the width of the boiler and fasten it to the handles so the muslin forms a sort of swing or hammock. Place the bundles inside this hammock, cover the boiler, and let the water boil for a good half-hour. The hot steam rises, penetrates the bundles, and sterilizes the contents. After the steaming place the bundles in a wire drain, resting on bricks on the back of the stove, to dry out. All sterilized bundles should be put in a clean box and laid away unopened until needed. Nail-brushes, scissors, and bobbin should be boiled in a basin during labor, and not taken from the water until used.

The point to keep in mind in preparing the room for confinement as well as supplies and dressings is: absolute cleanliness

and freedom from germs. Blood-poisoning and childbirth fevers come from infection by germs. For this reason the furniture of the room should be limited to necessities, and there should be no needless hangings or ornaments to collect dust. The bed, two or three chairs, a table for dressings and other things to be used during delivery, and another table for wash-bowl, pitcher, and towels, are all that need be in the room. Woodwork in the room and furniture should be wiped off with a disinfecting solution, and the tables covered with sterilized towels or sheets. The bed-clothes and clothing worn by the patient during confinement are practically sterile if washed clean, boiled, and dried in the sun and ironed. This can be done a few days before confinement is expected, and the clothing put away for use when the time arrives. Dressings must be more carefully sterilized, as the birth canal is, to all intents and purposes, an open wound for several days after delivery and must be treated as aseptically as a wound.

A woman about to bear her first child is naturally anxious to know at what time she

should call the doctor or the nurse. With her, labor does not proceed as rapidly as with those who have previously borne children, so there is no need for excitement or fear that the doctor will not arrive in time. Usually it takes from six to eight hours or even longer from the time of the first pains until the womb is fully opened for the child to pass out. The time may be much shorter for women who are already mothers, especially where they have good muscles, a large pelvis, and are inclined to quick labor. When this is the case the doctor should be informed in advance, and a hurry-call sent in on the first intimation of labor pains.

The first signal that pregnancy is approaching its termination is when the womb sinks down in the pelvis. This is from two to four weeks before the onset of labor. There will be noticed a feeling of relief from pressure, the abdomen appears flatter, and the breathing becomes less hampered. The desire, experienced in early pregnancy, to pass the urine frequently, reappears. There may also be pains in the legs and some added difficulty in walking. There

is sometimes a discharge of mucus from the vagina, but this does not mean the approach of labor, and is quite different from the watery discharge caused by the rupture of the bag of waters.

As soon as there are signs of approaching labor a full warm bath should be taken, the genitals being thoroughly and carefully washed; also, a soap-suds enema should be given to prevent unnecessary obstruction to the passage of the child or the possibility of a stool in the bed during confinement, with danger of infection. Pressure on the bladder will make it necessary to pass urine frequently, and each time it is done the genitals should be washed. A freshly laundered union-suit of knitted ribbed underwear, old or new, is the most comfortable garment to wear during confinement. It can be cut up the back and pinned together in order to make its removal easier after the baby is born. It keeps the body warm and prevents undue exposure during delivery. Long stockings may be worn to keep the legs and feet warm, and a nightgown if desired. This should be short, reaching

about to the knees, and open down the front.

Pains in the back or in the lower part of the abdomen are signs of the first stage of labor. They may be preceded by a discharge of blood or a watery fluid. Then come the pains at intervals as the womb contracts in its efforts to expel the child. These last until the neck of the womb is dilated sufficiently to permit the child to pass through. During these pains the waters are forced downward and, by pushing against the narrow neck, act as an opening-wedge, the bag breaks, and the waters escape a little before the neck is completely dilated, or at the second stage of labor. Sometimes the water breaks several days before labor. This causes what is called a dry birth.

Occasionally pains similar to these described may appear several days or weeks before real labor; these are false labor pains, but the only way to know that they are false is by the doctor's examination and the fact that they tend to come stronger and quicker than the real pains. Also, if the hand is placed on the abdomen

during real labor pains the uterus can be felt to contract and grow hard, while between pains it softens again.

When the first pains come on the physician should at once be notified. As this stage is usually a long one, he may not think it necessary to call at once, or he may come and examine the patient and leave instructions with nurse or attendant to be called at a certain time or to have the progress of labor reported. In the mean time there is usually no necessity for the patient to go to bed. Between pains she may rest by lying down if she chooses. Otherwise she will find that walking about or employing herself with some light house-work will divert her mind from her pains. These are sometimes made less trying by leaning over the foot of the bed or the back of a chair. Broths may be taken from time to time, and the patient may have all the water she wishes to drink. As said before, there should be no straining during the first stage of labor. It does not help the progress of the child, and it exhausts the mother's strength. When the intervals between pains become short, about

five minutes apart, or the pressure of the head causes the parts about the vulva to enlarge, it is time to put the patient to bed, and the doctor should be again notified, as the second stage of labor is at hand.

The abdominal muscles now contract, naturally, when the pains come on and combine with the uterine contractions to expel the child. Straining at this time is a relief to the patient. She will also find relief by bracing her feet against the foot of the bed and pulling on a band of muslin or a sheet attached to the bed. If the pains are very severe chloroform is sometimes given to lessen the consciousness of them, but chloroform should always be given by a physician or a trained attendant under his supervision. When given under any other conditions a great risk is assumed. The second stage of labor ends with the expelling of the child.

The third stage is where the afterbirth, or placenta, comes away. This is usually from fifteen minutes to half an hour after the birth of the baby. It is while waiting for the afterbirth that the physician usu-

ally sews up any small tears that may have occurred; at this time the parts are still numbed by the pressure during birth, and the repairs can be done with little inconvenience to the patient. Perineal lacerations do not always occur, but when they do it is usually because it was unavoidable. It is best that they should be attended to at once, unless the laceration is extensive, when it may be wiser to wait until later. Occasions for delay, however, are rare.

The Unforeseen. The unforeseen will often happen. Sometimes the doctor is delayed in reaching the patient, or the baby may come earlier than expected and before doctor and nurse arrive. Some families live in remote districts where it is not uncommon for women to give birth to babies with no other assistance than that given by a neighbor or by some member of the family. Under these circumstances it is well for some one to know what to do, and more especially *what not to do*. In the first place, as has been previously said, there must be absolute cleanliness of the patient, the room, the bedding, the cloth-

ing, and the hands and clothing of the person or persons assisting. *Everything that comes in contact with the woman during delivery must be clean.* If there is a chance of the doctor arriving within a reasonable time it is well to keep the patient in bed instead of walking about, as this will sometimes delay labor a little. When the pains are coming at five-minute intervals put her to bed. Previous to this the bladder and the rectum should be emptied, but it is not well for her to remain on the toilet too long or to strain in trying to pass urine, for if labor is easy and rapid the child may be born at this time.

Have the patient lie on her back, with knees drawn up and spread apart. Then let nature take its course. *Don't interfere.* When the baby is born if it does not cry out give it a few quick slaps on its back, or slap it with the end of a wet towel several times on the chest and back until it does cry out. Then wipe the mucus from its mouth with a piece of gauze wound around the little finger and wet with the boric-acid solution. At the same time wash out the nose, and with separate bits of cotton

wash around the eyes. Then, opening the lids with thumb and forefinger, dip a fresh bit of cotton in the boric acid and let several drops from the wet cotton fall into the eyes. There is no danger of getting too much of this solution in the eyes. It is harmless, cleansing, and a mild disinfectant. Now cover the child with a bit of blanket, and lay it near its mother to keep warm.

Do Not Hasten to Cut the Cord. Keep the forefinger on it, and when it ceases to pulsate, then with the sterile tape tie the cord tightly three inches from the navel; then make a second tying an inch beyond the first. Between these two cut the cord, using a pair of sharp scissors which have been previously boiled and not removed from the water until used. Dust the navel cord with a little boric-acid powder and cover it with a piece of sterilized gauze. A drop or two of blood will probably ooze from the cord when cut, but if the bleeding continues the string is not tied tight enough, and the cord should be tied again a little nearer the navel, *but do not disturb the first tape.*

If the afterbirth is slow in coming *do not try to hasten it by pulling on the navel string or cause its expulsion in any way.* Cover the genitals with a gauze pad wrung out of a disinfectant and wait for it to be cast off. Now place the hand over the mother's abdomen until the upper part of the uterus is felt a little below the navel, and hold it firmly for about an hour. If there is much bleeding cold applications over the uterus will help control it. There is always considerable bloody discharge right after the birth, but it should not continue for a long time. The external parts should be carefully bathed with an antiseptic solution. First wash the private parts, then the thighs and buttocks. After this replace soiled pads, gown, and sheets by fresh ones, and place a sterilized pad over the parts.

If the measures already described do not revive the child and cause it to breathe and cry out, after the cord is cut dip the baby several times and quickly in a tub of cold water, as cold as it runs from the faucet. From the cold water put the baby in a tub of warm water for a few minutes, then

back again into the cold water; this may be done several times. Artificial respiration should also be tried. As soon as breathing is established wrap the child in a warm blanket and keep it warm by placing it close to its mother or by putting hot-water bags around it—but not so near that there is danger of burning it.

Hospitals. The hospital as a place of confinement offers several advantages over the home, and when one counts the cost of surgical supplies, the salary of a nurse, her board and washing, it is, on the whole, less expensive. At the hospital there is everything on hand for an emergency, surgical asepsis is more possible, and it affords a rest and quiet not always possible at home. The hospital is especially to be recommended under the following conditions:

To those who live in cramped quarters and small apartments.

Where there is a possibility of abnormal births.

Women who live in isolated places where good medical attention is impossible.

To women who bear their first children when past the age of thirty.

Midwives are fairly trustworthy if they hold a diploma from a licensed school of midwifery, have a good record for carefulness and cleanliness, and are competent enough to know when the birth is not normal and call in a physician.

VIII

THE LYING-IN PERIOD

AFTER the birth of the child, and as soon as the mother has received the proper attention as described in the last chapter, she should be made comfortable by darkening the room and being disturbed as little as possible. A cup of hot broth or milk may be given her to refresh her after the exhaustion of labor. Quiet and sleep are very necessary, and no one should be admitted to the room for twenty-four hours, excepting the immediate members of the family, provided she wishes to see them, and these only for a few minutes. If the delivery has been particularly exhausting even the family should be excluded. Other visitors should not be permitted until the patient is up and about the room.

The sanitary or sterile napkin should be changed every four or five hours; also whenever the patient urinates or has a stool. Every time it is changed the parts should be washed off by pouring over them, from a pitcher, a disinfecting solution, the flow running off into a bed-pan placed beneath the buttocks. If the napkins become soaked they must be changed more often.

The discharge following childbirth is called lochia, and should be carefully watched during the entire lying-in period. This discharge may be quite profuse during the first twenty-four hours without meaning anything unfavorable, but if it is very severe it is best to be on the safe side and notify the doctor. The flow should continue to diminish daily and change in color from a bright red to a thin brownish discharge. It usually lasts about two weeks, sometimes longer, especially in women who have had children, in those who do not nurse their babies, and in those who get up too early and do heavy work. In the latter instance it may last six weeks, but this is an abnormal condition, and the

doctor should be consulted, as rest and treatment are required.

The temperature should be taken twice a day for at least a week and anything over 100 degrees reported to the doctor at once, as even a slight fever during the first week may indicate blood-poisoning. The danger of such an occurrence, however, may be entirely avoided by absolute cleanliness during confinement and in caring for the patient afterward.

For the first few hours after delivery the head should be kept low. The abdominal cavity being suddenly relieved from pressure of the enlarged womb, the veins at once begin to dilate, and the blood rushes in to fill them; at first this may be too rapid and take too much blood from the brain. In a few hours, however, the circulation adapts itself, and the danger is over. Then the patient can have a pillow. During the first two or three days it is best to lie on the back as much as possible if it does not cause too much discomfort. When necessary to turn on the side it is well to keep the legs extended and not to draw them up.

After the third day the patient may lie in any position she finds most comfortable. If she finds it more comfortable to lie on the stomach, so much the better, since it tends to prevent backward displacements. She may now commence to sit up in bed, propped by pillows, but she should not get up until the uterus has receded into the pelvic cavity so that it cannot be felt by external examination, which is usually from two days to two weeks. At the end of this time the mother may sit up in a comfortable chair and walk about the room a little, but should go to bed or lie on a couch as soon as she feels the slightest fatigue. About the third week, provided everything has progressed favorably, she may go out for a short walk or drive, but she should not attempt household work, do any lifting, go up and down stairs more than once a day, or stand long at a time, until the end of six weeks. It takes at least this length of time for the womb to get back to its normal size and position in the pelvis. Heavy work (such as washing, scrubbing, sweeping, lifting) if attempted too soon after confinement causes

displacements or falling of the womb, especially if there has been a tear in the pelvic floor.

An *abdominal binder* is usually applied after delivery for the purpose of pressure on the womb, thus stimulating contraction. It should be applied tightly to serve this purpose, and it is not necessary after the first twenty-four hours unless the patient feels more comfortable with the support. In this case it should not be pinned too tightly, as it may do harm by causing a backward displacement. As soon as the patient is able to be on her feet, if she has been accustomed to wearing corsets she should wear a well-fitting one, as a corset that presses the abdominal contents downward is bad. Douches, unless ordered by the doctor and supervised by an experienced person, should not be given.

The Bladder. There is usually some difficulty experienced in passing urine for a day or two after confinement. The compression during pregnancy and the unusual pressure during delivery cause the bladder tissue to lose its normal tone for

a short time. It may eventually be necessary to draw away the urine by means of a catheter, but this should not be done until at least twelve hours have passed and every effort has been made to stimulate the bladder to action by the application of cloths wrung out of hot water over the bladder and genitals, or by alternating cloths wrung out of hot and cold water. An injection of hot water into the rectum or the sound of water running from the faucet are things to be tried and repeated at intervals. If after twelve hours these fail, which they rarely do, the catheter will have to be used by the physician or a competent nurse. The patient may be allowed to sit in an upright position for a short time on the bed-pan, but this is to be avoided if possible for the first three days.

Bowels. At the end of forty-eight hours after confinement a laxative should be given. Castor-oil in one or two tablespoonful doses is a favorite, because of the stimulating effect it is supposed to have on the milk secretions. If it is difficult to have a movement an enema of two or three ounces of olive-oil may be given,

especially if there has been a perineal tear which is sewn up. There is apt to be constipation during the lying-in period on account of the relaxed condition of the abdominal walls, lack of exercise, and tenderness about the rectum. Laxative foods should be taken, or a mild laxative, such as cascara sagrada, in small doses of from ten to twenty drops three times a day. After a while the doses may be gradually diminished. Enemas may be occasionally necessary.

The Breasts. Before and after each nursing the nipples should be washed with a saturated solution of boric acid; between nursings it is well to have the nipples smeared with vaseline clean from the tube, or cocoa-butter may be used. Keep them covered with a piece of sterile gauze. Frequently during the early weeks following confinement the breasts will secrete more milk than the baby is able to take, and the milk if allowed to remain in the breasts will cause them to become distended and painful. Sometimes they become hard and lumps form. To prevent this condition the residue of milk should be

taken away by gently stroking the breast toward the nipple, taking it between the thumb and fingers, or by the use of a breast-pump. A breast-binder, so adjusted as to cause uniform pressure around the breasts, is also good to relieve the condition. Uniform pressure may ordinarily be obtained by tucking wads of cotton under the binder, between the breasts, about them, and under the arms. When the breasts become hard or have lumps, cloths wrung out of hot water and wrapped around them will frequently give relief. The mother should take less liquid, and a dose of salts to give a watery movement. As she returns to her usual active life, and the baby grows stronger and correspondingly hungry, this condition will correct itself.

The mother's diet for the first day after confinement should be milk and broths. On the second day toast, eggs, and a cereal may be added. On the third day, provided there is no fever and that she has had a free movement of the bowels, she may have a dinner of meat, vegetables, and dessert. It is a mistake to think that

unusual or rich foods, cream, beer, ale, or porter must be taken at this time to increase the milk. When this is done it is more than likely to result in the mother growing stout and the milk decreasing, usually disappearing entirely. Under ordinary conditions a woman may eat anything that agrees with her. A good general diet consists of soups, meat once or twice a day, and fresh vegetables; when the latter are not in season good canned ones may be substituted, and fruit, oysters, fish, eggs, and wholesome desserts. Foods that cause flatulence and indigestion have to be avoided. They are listed in the chapter on "The Hygiene of Pregnancy."

A cup of cocoa or a bowl of thin, well-salted yellow corn-meal gruel will be found excellent to increase the flow of milk; it also acts as a laxative. Tea and coffee may be drunk moderately—that is, one cup of each a day. Tea causes constipation in both mother and child, and causes the milk to become so thin that it furnishes little nourishment for the child. A nursing mother should drink plenty of water.

Deficient milk secretions may be due to

any of the following causes: lack of gland-tissue, poor health, age, obesity, overwork, nervousness, worry, or previous disease of the breasts.

Leaking breasts are not uncommon, and when this condition exists it is a difficult one to check. The breast-binder, to give support and even pressure, with occasional doses of salts, will do much to check the flow, especially if it be from an over-abundant fullness of the breasts. When the cause is anemia or ill health it is best to wean the child, as the condition is weakening.

Sore nipples are usually due to neglect in caring for the breasts during pregnancy; the care of which has already been described.

Abscess of the breast is more likely to occur in women who are nursing their first baby. It is usually due to an infection of some kind which enters through a crack or abrasion of the nipple, or the child's mouth may be the source of infectious germs. An abscess begins with a hard, tender swelling which soon becomes red, accompanied at times with fever,

chills, and general prostration. It is best to send for the doctor, as the earlier the abscess is opened the less harm will result to the breast. It is a mistake to allow the abscess to go until it breaks spontaneously or opens itself. When convinced that there is an abscess, not merely a caked breast, it is best to take the child from the breast, support the breasts with a binder, and keep cold applications over the inflamed area.

The Baby. After the cord is cut, the face washed, the mouth and the eyes washed out, cover the body with vaseline or olive-oil. This removes the cheesy matter which usually covers a part if not all of the baby's body. Now wrap the baby in a warm blanket or shawl and put him in a basket or a crib in a warm place, out of the way, until the mother's needs are attended to. The baby should be well covered, head and all, a small opening being left for breathing. It must be remembered that the baby has just come from a much warmer nest than the room temperature and feels the difference keenly; it is probably the sudden chilling that makes it cry out at its birth.

To prevent inflammation of the eyes through possible infection during its passage through the birth-canal a drop or two of a one-per-cent. of nitrate-of-silver solution should be dropped into each eye, then immediately washed out with the boric-acid solution. This is very important. Not having the eyes properly attended to at birth is a common cause of blindness.

As long as the baby is kept warm there is no need of hurry in the matter of bathing it. It will do no harm to let it lie six or eight hours if necessary. First see that the mother is made comfortable, the room made tidy, and that soiled pads and dressings are taken away; then begin to get things ready for the bath. Place within easy reach two basins of water, one for washing and one for rinsing the body. Use a large flannel apron or a blanket in which to wrap the baby, and keep him covered while bathing. Bathe him in front of the fire or near a radiator. The temperature of the room should be between 70 and 75 degrees for this first bath. The temperature of the water should be between 98

and 100 degrees. Keep the baby under cover of the blanket, and bathe with as little exposure as possible, taking only a small portion of his body at a time—first the head and face, then the arms, one at a time, next the chest and the abdomen. Then roll him over and wash his back and buttocks. Lastly, wash his legs, uncovering but one leg at a time. Be sure, however, to wash between all creases of the skin and remove all cheesy matter which may be there. Dry him with a soft towel. The baby should be bathed in this manner every day until the cord drops off. Then he should have a tub-bath every day.

Premature or very feeble children should not be bathed in water, but rubbed in oil and wrapped in cotton-batting, kept in place by winding a gauze bandage around the body and around each arm and leg. A little coat made of cheese-cloth, with cheese-cloth shoes and stockings attached, all lined with cotton, will keep its place on the child.

The cord should be dressed every day with a square of sterile gauze or clean linen, and a powder made of equal parts of burnt alum and bismuth dusted on it. The

gauze or linen should be four inches square with a small hole cut in the center. Put the cord through this hole, dust on the powder, and fold the sides of the square neatly over the center. The baby's band will hold the dressing in place. It is better not to wash the cord, which usually comes off by the end of the first week—sometimes a few days earlier or later. When it comes off the navel is still a little moist and raw and should be dusted with the powder until perfectly dry and healed. The hands should be clean and disinfected when dressing the cord, in order to prevent infection of the navel. When dressing the baby first put on the band, roll it around the body rather snugly and sew it; then put on the diaper, shirt, stockings, and bootees, flannel petticoat and dress. The two latter should be drawn up from the feet, not put on over the head. After baby is bathed and dressed wrap him in a clean flannel shawl or square, and put him in his crib or basket. The baby should not be handled or exhibited to visitors, nor disturbed more than is necessary.

Sleep. A newly born infant should sleep

most of the time. Do not take it up whenever it cries. This is a very bad plan to start out with. Many babies become nervous and spoiled early in life from being indulged in this way. If the baby cries examine it carefully. If it is wet change the diaper for a dry one. If the hands and feet are cold place hot-water bags in the crib. Change the baby's position a little, but do not take him up, walk with or rock him. To be made comfortable, kept warm, and fed regularly is about all the attention a baby requires during the early months of life. This done, he makes little trouble for those about him.

Bowels. A normal baby between the time of birth and the first twenty-four hours passes a black or dark-greenish movement. This is called meconium; movements of this type continue for a few days, gradually becoming lighter until on the fourth or fifth day they become a bright-yellow color, smooth and pasty. During the first two weeks there may be from three to six stools daily. After the first month they average two or three each day. During the early weeks small soft

lumps are apt to appear in the movements, which may cause the mother or nurse to think the milk is not properly digested and that the baby needs something in the way of medicine to aid digestion. Medicines will do no good. These little lumps are normal waste, not enough in bulk to make a smooth stool; as the mother's milk improves these lumps disappear.

Urine. A baby usually passes urine at birth or when it passes meconium; but the diapers should be watched; if no urine is passed in twenty-four hours report the fact to the doctor. Normal urine does not stain the diaper, but these should be washed after every change; if not, the dried urine will irritate the skin and cause chafing.

Nourishment. It is usual to place the baby at the breast six hours after birth. The stimulus of the nursing affects the uterus favorably, causing it to contract naturally and helping it to return to its natural condition. The first secretion the baby gets from its mother is not true milk, but what is called colostrum. This has a more or less laxative effect upon the in-

fant, which is beneficial. Milk comes usually by the third day. During the two or three days while the milk is coming in the baby requires no other nourishment and should be put to the breast every three or four hours. A little boiled water may be given at intervals between nursings. Sugar-water, the popular fennel-tea, milk and water, or any artificial food should not be given. After the second or third day, when the milk-flow is established, the baby should be nursed every two hours during the day and three times at night until it is four weeks old. The mouth should be washed out with boric-acid solution before and after each nursing. Infant-feeding by breast and bottle is discussed in succeeding chapters.

IX

THE MOTHER AND BABE

THE first baby is a most serious problem, and this in more ways than one. There are two classes of young mothers who are especially to be pitied; first, those who are entirely devoid of experience, who before marriage have been happy, light-hearted, and tenderly cared for, who have never taken any special thought for the future. That maternity should bring cares and responsibilities has never been a thought with them. But when it does come only too many young mothers find themselves completely overwhelmed by their ignorance and wholly at a loss as to what is right to do for their first-born, and struggle on as if blindfolded.

The young mothers of the second class are usually as totally lacking in experience as

those of the first, but, feeling responsibility for the future, they have made it a duty to conscientiously absorb many beautiful but wholly impracticable theories. Now, theories in most cases have proved rather disastrous experiments where infants are concerned, and I am inclined to think that this type of mother is more to be pitied than the first. Hers is the keen disappointment of seeing her cherished dreams crumble and fall one by one and of commencing again from the beginning to learn by a rather stern experience. Mother love and instinct are strong, barring a few exceptional cases, and these go a long way in helping the young mother over what is probably one of the most trying experiences which have so far come to her.

But what a young mother lacks in experience must necessarily be judiciously gained from others. I say judiciously, because the young mother usually is helpless under a deluge of advice which comes from kind and well-meaning friends, themselves without experience, but rich in theory, or from mothers and grandmothers who have brought up large families. Most of this

advice is probably a quarter of a century or more old, and in many ways is bound to be behind the times. Grandmothers, too, we all know, are apt to be more or less prejudiced in matters pertaining to their grandchildren and insist upon indulgences which would not have been tolerated with their own babies.

Then there is the advice of the mother (and it is usually well worth listening to) who has weathered the early trials of motherhood and, with her little family of three or four, has grown wise by the experience which is the best teacher.

In the mean time what of the poor infant, who is the other sufferer? To my mind the first baby is indeed a martyr and the victim of many experiments. A large number of babies, especially the first-born, suffer from lack of proper knowledge on the part of the mother, who, in her anxiety to do right, frequently overdoes it. It is undoubtedly true that much of the sickness and many of the deaths among infants under three months are due to lack of knowledge, bad management, and mistakes made in the beginning.

Many lessons can be learned from a casual study of animal nature, and any one who has had experience with domestic animals will know that there is nothing so good for very young and new-born creatures as to leave them alone to the care of the mother. Instinct teaches her to select a soft, warm place for her offspring; she washes them, feeds them, and guards them with a watchful eye.

Moderation, if practised in everything that pertains to the baby, will prove a safeguard to the mother and start her on the right path. It will give her time to reason out and solve many problems calmly and intelligently.

The early cry, which is painfully trying to some young mothers, especially to a nervous one, becomes less distressing if she stops to think that the lungs, never having been used, need exercise in order to make them strong. For the first three months the infant is too weak, even with a fair amount of crying, to develop the lungs to more than one-third their normal capacity, and that these organs cannot be considered perfect until they are inflated to their

utmost is enough to make her tolerant of a fair allowance of crying. A year of simple breathing would not accomplish as much toward developing the lungs as a moderate amount of crying each day for a month. It is the deep inhalation, such as accompanies a good cry, which alone can make the lungs strong. Healthy infants cry normally, and they should be allowed to do so a portion of each day. When the cry is whining or continuous it is usually caused by over-indulgence of some kind or by mistakes, such as handling the baby when he is more comfortable if left alone. Sleeping in bed with older persons is bad for a baby; it draws upon the vitality. All babies sleep better and are healthier if put to bed in their own little cribs, with all clothing removed with the exception of shirt, band, and diapers. The nightgown should be warm, also the coverings. Young infants should have a hot-water bag in the bed, especially in cold weather, and the feet should never be allowed to become cold. Otherwise leave them undisturbed, and they thrive, usually, without a drawback.

In this the animal kingdom furnishes the human mother with an object-lesson, and it will pay her also to extend her lesson in observation still further and note that when these baby animals are mauled and petted and carried about they do not thrive, but pine away and die.

Let us follow the life of an infant for the first three months. We will not theorize, neither will we experiment; a new-born infant is too tender and delicate for this. We will confine ourselves to facts which have been demonstrated over and over again with a great many babies of all kinds and through many years of experience. With the new-born infant we have a tiny bit of humanity in our hands as absolutely helpless and as dependent upon us as are the offspring of animals upon their parent. We have a human life at a tender age, when it is most plastic and easy to mold physically and mentally. We would first advise the young mother to go slowly and feel her way carefully, and never go to extremes.

For the first week or two the infant requires but little care; he must be bathed,

dressed, fed, and kept warm, otherwise for the most part left alone to gradually learn that he is alive, to make use of his different organs and senses. This process of development, while feeble, is quite as much as he is able to stand; it must come slowly; do not attempt to force matters where he is concerned. He does not require handling other than what is necessary during the process of bathing and dressing, with an occasional turning from side to side, simply to change the position. More than this is not good for him. Then he must be kept warm. To do this, remember, it is not necessary to overburden him with wraps or keep the room at a hothouse temperature; if you do you will have a baby as tender as a forced plant. Select the clothing for its lightness and warmth combined; if the weather is at all cool be sure that each little garment is warm before putting it on the body. Do not put the socks on while the feet are cold; warm these little members with your own warm hands or before an open fire. Warm the hands in the same way and, if necessary, draw a pair of worsted mittens over them, and let them

remain for a while until the hands are perfectly warm. Have a little afghan always ready to throw over the child. A very thin comfortable made of eiderdown is ideal for this purpose, as it is exceedingly light in weight and surprisingly warm; it is also the best possible covering at night.

For the first few days, until the baby has, so to speak, become acclimated, I would advise that the temperature of the room be kept at 72 degrees Fahrenheit; after this it may be 70 degrees. Try to keep the temperature as even as possible, as it would be better to keep it at an even, low temperature than at a varying high one.

For the first few days let us also be careful of light. The experienced gardener would not think of transplanting a young plant from the shade in the greenhouse or garden without carefully protecting it from the strong light for a few days, until it has become accustomed to the change and its new surroundings. It is very much the same with the baby. Let the new baby accustom his eyes gradually to the daylight. For the first day the light in the room should be rather subdued; the next day a

little more light may be let in, and finally the bright sunshine; but always be careful that none of this shines directly in the baby's eyes, that the face is always turned from any bright light, such as electric and incandescent light or lamp. Turn the child's eyes away from the window through which the sun shines, especially if there is a very light shade or if the walls in the room are white; there should always be some means taken to shade the eyes from the glare.

Of fresh air the infant should have plenty. At first he should be taken from the nursery for an hour every day, and the room should be aired thoroughly. When the windows have been closed and the room is about 68 or 70 degrees bring the baby back wrapped in his little blanket, which should not be removed until the room is the proper degree for an infant a few days old. In the course of a few days more let the temperature of the room be a few degrees lower when the baby is brought back. Every few days lower the temperature a degree or two until, by the time the baby is a month or six weeks old, he has become accustomed to taking into his lungs

air of various degrees of coldness. Then we have him ready to go out into the clear, fresh air without danger of taking cold.

At the end of seven or eight weeks the little new-comer is beginning to wake up and to realize the fact that he is living. If he is allowed to have the slow, peaceful life that has been suggested, this gradual awakening is a thing of joy to him and a delight to those about him. His eyes have now begun to follow you about the room, or they will fasten themselves upon some object; a little gurgle of delight escapes him; later, sweet smiles are continually lighting up the little face as he becomes more than half-way conscious of life and the things about him. His dimpled hands and feet attract him, he attempts to put them in his mouth, and after days of effort he at last succeeds in placing them, with a moderate amount of accuracy, where he wants them.

All this is work and amusement for the little one, and is, in his small way, as much as he is capable of. When the baby has reached this period he is beginning to leave the vegetating age behind him and requires a little more attention. He is

heavier, consequently his position needs to be changed more often to prevent his becoming tired. He is stronger and uses his legs more vigorously; now the clothes should be shortened to give the muscles of the legs more chance to develop. He should also have a longer time in the open air, and more fresh air may be let into the room at night. With this his appetite increases and more food is necessary; he is more intelligent and requires more entertainment, but as his own powers in this direction have increased fourfold in this surprisingly short period he is perfectly able to look out for himself in this respect. It is not necessary to help him; let him amuse himself instead of providing entertainment for him.

Comparatively few children are born diseased; the average new-born baby is normal and healthy, and in starting out the young mother should always have this fact in mind to comfort her; it should give her confidence in herself and in her ability to keep the baby in this healthy condition. Disease is not easily acquired by the new-born child.

X

CLOTHING THE BABY

IN selecting clothing for a baby there are three things to be considered—health, comfort, and simplicity. Little babies do not store up a great amount of animal heat, and their little bodies chill easily. It is necessary that their clothing be warm enough at all seasons to prevent the waste of what little heat they have, as their energy and vitality are dependent upon its being conserved. It is especially necessary that the chest and the abdomen, which inclose the most important vital organs—lungs, heart, stomach, and intestines—should hold their heat. Infants do not feel the heat of summer as much as is often supposed, and many infantile disorders of this season can frequently be traced to the fact that these parts of their

bodies have not been kept sufficiently warm. Neither should a baby be over-weighted with clothing in the winter. Extremes are to be avoided both in summer and in winter. For warmth and comfort, well-fitting garments are much to be preferred to the loose garment of the kimono or Princess style. Such garments are apt to be cold and will gather about the body in uncomfortable wrinkles and bunches.

Band. For the first five weeks of life use a simple band torn from a strip of flannel thirty inches long. Each strip should be seven inches wide. It is not necessary to hem these, but finish with wide button-hole stitch. At the end of five weeks replace these with the ribbed or knitted band. For both summer and winter these bands should be light in weight, containing one half wool and the other half cotton or silk. They should be long enough to reach from armpits to thighs. The shirts should be of the same ribbed material, light weight for summer, medium for winter. They should have long sleeves and fasten down the front. A light-weight flannel *petticoat* made with a muslin waist

should be worn summer and winter. Pinning-blankets are not necessary. A white petticoat is not essential, but one should always be worn under a dress of fine, sheer material.

Length of Clothing. Dresses and petticoats should not be longer than twenty-six inches. Anything beyond this length adds a needless weight for the little body to carry. If much shorter than twenty-six inches they do not afford sufficient warmth and protection to the legs and feet.

Dresses should be simple and may be made of as fine material as the mother's means will allow; this makes little difference, how ever, as long as the garments are neatly made and there are enough to keep the baby spotlessly clean.

Nightgowns should be made of light-weight flannel for winter and cambric or longcloth for summer. They should be made long enough to turn up and button at the bottom, or drawn together with a draw-string so as to prevent the feet from kicking out and becoming exposed to the cold.

Diapers. The best material for diapers

is fine cotton bird's-eye. Four dozen at least are necessary. One-third should be eighteen inches wide and thirty-six inches long; these should be used for the first two or three months. The remaining two-thirds should be twenty-two inches wide and forty-four inches long. Old table-linen cut into appropriate-sized squares makes ideal diapers for the first weeks, or as long as they will last. Cheese-cloth and outing-flannel are not suitable for diapers. The latter soon becomes harsh and thin, and both cause the baby to become chafed.

Number of Garments Required

- 4 to 6 dresses (2 yards for each of yard-wide material).
- 4 to 6 nightgowns ($1\frac{3}{4}$ yards for each of yard-wide material).
- 4 to 6 petticoats (2 yards for each of yard-wide material).
- 4 to 6 flannel petticoats ($1\frac{1}{2}$ yards for each of yard-wide material).
- 4 to 6 flannel ribbed bands.
- 2 to 4 wrappers, outing-flannel or fine flannel ($1\frac{3}{4}$ yards of yard-wide material).
- 4 to 6 ribbed or knitted shirts (it is best to get No. 2 size, as the first size is outgrown so quickly).
- 4 pairs of bootees.

4 pairs of woolen stockings for winter, or wool and cotton or silk for summer.

2 flannel squares or shawls.

4 to 6 dozen diapers.

A cap and coat will be needed later when the baby is old enough to go out.

The baby's basket is usually about sixteen by twenty inches square and four or five inches deep. It should contain:

1 small soft brush and fine comb.

6 wash-cloths, made of bird's-eye linen or cheese-cloth 8 inches square.

4 to 6 soft linen towels.

1 small pair of scissors with blunt points.

A small package of absorbent cotton or small squares of soft, old linen for washing out mouth and eyes.

1 tube of white vaseline.

1 box of good talcum powder.

1 paper, each, of large and small safety-pins.

Thread and needles.

Pincushion.

Other things necessary are:

A small cup for boric-acid solution.

A bath-tub of rubber, agate, or tin.

A cake of Castile or other mild soap.

1 agate basin.

2 pitchers for hot and cold water.

1 bath thermometer.

A covered pail for soiled diapers.

Crib. A white-enameled metal crib is to be preferred to any other kind, or a large clothes-basket may be used for the first month or two. This should be padded inside with a padding made of cotton-batting and cheese-cloth. The bedding for both crib and basket is the same. The crib should have a woven mattress instead of narrow strips of iron on which to place the bedding. A heavy gray blanket, folded to fit the basket or crib, makes a sanitary and soft mattress. Over this there should be a square of rubber sheeting. From six to eight sheets and six pillow-slips are necessary. The pillow should be made of silk fiber, down, or hair. It should be eighteen by twenty-two inches square and not over two and one-half inches thick. There should be one pair of woolen crib blankets and a small comfortable of down or lamb's wool. Cotton blankets or comfortables are not warm enough for a baby.

XI

BREAST-FEEDING

THROUGHOUT the entire animal kingdom each species is provided by nature with nourishment particularly adapted to its peculiar kind of young. The food provided for the human baby and the one on which it thrives best is its mother's milk. As the first few months of infancy are the most telling ones for a good start in life, it is only fair to the child that its mother should make a conscientious effort to nurse her baby. The exceptions when a mother should not nurse her baby are when she has tuberculosis or any specific disease, either inherited or acquired; when she is insane, given to alcoholic excesses, or is extremely anemic. To get the best results the nursing mother must expect, during lactation, to deprive

herself of some of her outside interests and pleasures and devote herself to this one thing. If she indulges in pleasures to the extent of keeping irregular or late hours she cannot expect to successfully nurse her baby. She must be temperate in both diet and mode of living. The nursing period should last from six to twelve months; not over the latter period, unless there is some unusually good reason for doing so, as in these days of high-pressure living it is doubtful if it is good for the mother or the child.

Few women are able to successfully prolong the nursing period beyond the eighth month; usually they must give it up a month or two earlier. I would advise every nursing mother to start during the first month, or even the first week, by giving the baby one bottle-feeding a day of a formula suitable for its age; this in view of the fact that the weaning period is sure to come sooner or later, often from some unforeseen happening instead of in the ordinary course of events. It is well, therefore, to accustom the stomach at an early age to two kinds of milk; then if it

becomes necessary to force the weaning suddenly it is not such a difficult undertaking. A sudden change from breast to cows' milk or any infant food is not desirable for an infant, especially a very young one, with his delicate and undeveloped organs of digestion; neither is it rational to expect the stomach of the infant to accept nourishment intended for the calf, with its different physical and mental requirements, without some altering and adaptation.

Regularity in Feeding. The first three months of an infant's life are by far the most important of the first year; if they have been well started the mother has little to fear for the future, for in these quiet months of development and growth a store of strength and endurance has been husbanded for future emergencies, should such arise. To give a baby a right start in life it must be fed regularly and not too long at a time; twenty minutes at a feeding is long enough. The baby should not be allowed to nurse for a few moments, stop and play, then turn to the breast again. If allowed to do this the child will often

be a whole hour taking his food, and hardly finish one meal before it is time to be fed again. Children rarely thrive on irregular feeding, as it causes gastric disturbances.

During the first four weeks a baby should be fed every two hours; during the day seven feedings, three feedings at night between 7 P.M. and 7 A.M. From the fourth to the sixth week feed every two and one-half hours, with two feedings at night, usually at 10 P.M. and one between this and morning. From the sixth week the baby should be nursed once in three hours, with two night feedings. If there is an abundance of milk the baby should nurse one breast at each nursing, alternating them. If the supply is not abundant both breasts may be used at each feeding. If the baby is asleep at feeding-time he should be awakened; this will not be necessary more than a few times, as babies form habits quickly, and in a few days the habit of regularity in meals will become established, and the child will be awake and ready a few minutes before meal-time. As it takes a little baby at least two hours

to digest its food, and as he grows older from two and one-half to three hours, much harm is done if he is fed more often. As one meal is not thoroughly digested and passed from the stomach into the intestines before another one is taken, this overworks the little stomach and causes indigestion and vomiting. On the other hand, if the baby is allowed to sleep for perhaps an hour or more past his meal-time he becomes so ravenously hungry, and when nursed takes his food so greedily, that he gets far more than his small stomach is capable of holding. It stretches and becomes over-distended, and vomiting and indigestion again result. It might be well to know that the baby's stomach the first few weeks of life is barely the size of a large hen's egg.

Complications in breast-feeding are not uncommon. There are several reasons for this. Not infrequently during the early months soft curds or watery substance may be vomited between meals; the stools may be thin, tinged with green, or have soft, fatty curds in them; there may be colic also. When this condition occurs do

not be persuaded that your milk does not agree with the baby and discontinue nursing it. It is usually because the milk is too rich in cream or fat, and the remedy is much more simple than weaning the baby and giving it cows' milk or an infant food. Immediately before every nursing give the baby a tablespoonful of boiled water that has been cooled to the temperature of breast milk, which is about 98 degrees, and nurse the baby fifteen minutes instead of twenty. The mother should exercise more, get more fresh air, eat less meat and cereals and more green vegetables, if possible. If she is drinking much milk, cut it down to one-half the quantity. In a very short time this trouble will right itself; then the water may be reduced or stopped.

Colic. When a nursing baby has colic, but otherwise its digestion appears to be all right, it is usually caused by lack of exercise, nervousness, or constipation on the part of the mother, or possibly because the baby is not kept warm enough. The abdomen should always be protected by a woolen band, and the hands and feet kept warm. The remedy for colic in a nursing

baby is for the mother to overcome the cause in herself.

Vomiting. If a nursing baby vomits *immediately* or shortly after taking its food it is because it is fed too often or nurses too long at a feeding. In consequence the tiny stomach gets more than it can hold, and the surplus food comes back; but this also stretches the stomach, and over-distention of the delicate stomach-tissue frequently causes chronic indigestion. If the vomiting is frequent it is best to make the feedings farther apart or else nurse the baby but fifteen minutes at a feeding.

When a baby nurses eagerly for a few moments, then drops the breast and cries, or when it cries after each feeding and sucks its fingers right after and between meals, it is usually a sign that there is not enough nourishment, and breast milk must be supplemented by cows' milk. The best way to determine whether a nursing baby is getting the proper amount of food is to weigh him immediately before and after each meal. The gain in weight represents the amount of nourishment the child receives. A baby under one month should

gain from two to four ounces; from one to three months, three to five ounces; and from four to eight months, five to seven ounces. If, after nursing, the gain is less than the minimum number of ounces mentioned above the baby is not getting enough food, and breast-feeding should be supplemented with properly diluted cows' milk. This is one of the occasions where the one bottle-feeding, before mentioned, comes in well; it also gives the mother a chance, once in a while, to get a little rest or an extra hour or two of much-needed recreation. I would advise in the case of all breast-fed babies at the third month the mother add a second bottle-feeding, another at the sixth month, and keep on in this way, so that by the tenth or twelfth month the baby is entirely weaned. This method is far more safe than to attempt sudden weaning or to prolong nursing beyond the twelfth month.

The signs of thriving are when a baby takes its food well, does not vomit, has a soft yellow stool every day, and shows a steady increase in weight. At birth the average weight is from seven to seven and

one-half pounds. During the first week there is usually a slight loss in weight; after this there should be a steady gain. The birth-weight is generally doubled by the sixth month, and the baby should weigh approximately three times the birth-weight at the end of the first year.

XII

BOTTLE-FEEDING

WHEN it is impossible for a mother to nurse her child or for good reasons it is best for her not to do so the next best substitute is the milk of some animal, preferably cows' milk; but this should be changed or adapted to the stomach of the infant. By comparing the size of the infant to that of the calf, the strength of both at birth, their development in muscular growth, you will readily see why the milk of the cow, which is intended to develop the animal, is not in its natural state suitable for the human baby.

Before birth the infant receives its nourishment through the mother by absorption; this is sufficient to develop the organs up to the time of birth. At birth the digestive organs are by no means per-

fectly developed. They are still feeble, but with proper nourishment they begin to develop and grow stronger. Without going deeply into the chemistry of food, or puzzling the young mother with terms and names which would probably mean little to her, I would like to impress upon her a few simple facts to be remembered concerning the composition of milk, that she may more intelligently prepare her baby's food.

All milk is composed chiefly of these elements: protein, which is a muscle and tissue builder, also produces heat and energy; carbohydrates (such as sugar), which produce fat and heat; and fat (cream), which performs about the same functions as the carbohydrates, producing possibly more fuel or heat. There are also certain mineral salts and water. The milk of all animals contains these elements, but in different proportions and consistency, according to the animal and its habits and requirements. For instance, the protein of cows' milk is much tougher and harder to digest than that of human milk. The fats are also much harder to

digest; but the fat in human milk contains a certain acid which causes it to melt at a much lower temperature than the fat of cows' milk, and the lower the melting-point of fat the easier it is to digest.

Fortunately, the human stomach is very adaptable, and if the modifying of cows' milk is intelligently and carefully managed the infant will soon become accustomed to it, digest, assimilate, and thrive on it almost as well as on that provided by nature.

Milk. Breast milk is practically sterile, so in selecting cows' milk for a baby it must be as nearly clean as possible. If one lives in a city be careful to procure the milk from a dealer who is reliable and responsible for the cleanliness and purity of his milk. The milk that comes from inspected dairies where it is bottled and sealed before sending to the city is best. Milk that comes to the dealer in bulk and is dipped from the can into bottles, pails, or pitchers is not fit for babies' food. Those who live in the country should make sure that their milk comes from clean cows kept in clean stables, and that

the milkers' hands, clothing, and pails are clean. All milk contains a certain amount of bacteria. These for the most part will not cause harm unless found in very large numbers, but a small number will multiply by millions and billions if the milk is allowed to stand long in a warm atmosphere after it comes from the cows.

While these germs have little effect on an adult, when taken into the delicate stomach of an infant they are very irritating and cause vomiting, diarrhea, and inflammation. Milk intended for a baby should be placed in a clean receptacle and rapidly cooled as soon after it comes from the cow as possible. It should then be sealed and kept cool until it is time to use it. Milk over-rich in cream, such as usually comes from Jersey cows, is too rich for most babies, especially in hot weather. Extra cream added to cows' milk is not a desirable addition to babies' food unless during the first month of a premature or very delicate underweight baby's life. The milk of a single cow will often vary in richness from day to day, frequently between morning and night milkings; consequently,

the milk from several or a herd of cows is best, for the milk will be more uniform. Milk should be carried to the consumer with the container packed in ice or placed in very cold water, so that it is delivered at a low temperature. Here the responsibility of the dealer ceases and that of the consumer commences.

Milk should not be allowed to stand on door-steps, in areaways, or in hot kitchens. If it does, all the care and pains of the dairyman will be undone. Every mother should be over-particular about these two essential points—*i.e.*, cleanliness and keeping the milk cool. Now that we know what is desirable in the milk and handling of it, the next point to be considered is the *diluent*. Water is an excellent one, has the advantage of costing nothing and of always being on hand. It may contain impurities, however, so it must be boiled before using and set aside to cool in pitcher or jar, covered with a piece of cheese-cloth or a clean towel, to keep out dust and insects. Having had unusual opportunities for the study of infant-feeding and the effect of diluents, my experience has been

that milk, when diluted with a thin gruel, is under most conditions more easily digested by infants than when water alone is used.

The exceptions are when, occasionally, during the first few weeks of life, the infant has some difficulty in digesting the starches these gruels contain; in this case the gruels may be dextrinized, thus overcoming the difficulty, or boiled water may be used for a month or two. Then I would advise using gruel. The best gruels for diluents are made of either barley, wheat, oat, or legume (bean) flour; under ordinary circumstances the first-named is the best all-round flour for making gruel, as a diluent for milk, in infant-feeding. The following formulas are intended for infants from one week up to one year of age; and under ordinary circumstances, with cleanliness and care, they should suit the digestion of almost any healthy infant. At the same time it must be remembered that no set of formulas or rules can be applied alike to all infants. Your baby is an individual baby; these formulas are made for the average one,

consequently it is necessary to use judgment in adapting these formulas.

When weaning a baby from the breast to cows' milk always select a formula for a baby a month or two younger than the age of the child, gradually working up to the one indicated for his age. When starting a baby of a week or two on a formula if it disagrees with him and causes vomiting weaken the food a little for a few days by taking away one or two teaspoonfuls of milk and replacing them with water or gruel. Then work the formula up to the original one by adding the milk at the rate of a half teaspoonful every few days.

Whenever the food is increased or made stronger do not become alarmed if the baby at first vomits one or more of its feedings or if the food causes a change in the character of its movements. Some little upsetting is not at all unlikely to occur under these circumstances. Give the stomach twenty-four hours to become accustomed to the change; then if matters do not right themselves go back to the former formula and make the change more gradual. Then, again, do not look to the

food as being the cause of every upsetting or ailment that occurs in the child. It is a great mistake to lay every disturbance to the food; a new tooth, some unusual excitement in the way of visitors, or a slight cold might disturb the digestion for a short time.

FORMULA I (FOR FIRST WEEK)

Milk ¹	3 ounces ²
Sugar, granulated	1 teaspoonful
Boiled water	17 ounces

Mix these ingredients and divide into ten equal parts; put these in ten separate bottles, seal with clean cotton-batting, and set in a cold place. To place the bottles in iced water is the best means of preventing the food from souring. Feed the infant the contents of one bottle once in two hours from 6 A.M. until 6 P.M., then one feeding at 9 P.M., 12 P.M., and 3 A.M., each. Warm the milk by placing the bottle in hot water for a few moments; do not

¹ Pour the milk into a bowl and stir so that the cream is evenly mixed with the rest of milk.

² Two tablespoonfuls are one ounce.

remove the cotton stopper until the food is given to the child, then replace it with a black rubber nipple. Let a little of the food drop on the wrist to test the heat before giving to the child; never allow any one to test it by putting the nipple in the mouth.

FORMULA II (FOR SECOND WEEK)

Milk	4 ounces
Sugar, granulated	1 teaspoonful
Barley gruel or boiled water	17 ounces
Salt	a small pinch

Prepare as in preceding formula. Divide into ten bottles; feeding-hours the same.

FORMULA III (FOR THIRD WEEK)

(*Ingredients, same as preceding formulas.*)

Milk	6 ounces
Sugar, granulated	1 teaspoonful
Barley gruel or boiled water	20 ounces
Salt	a small pinch

Prepare as in preceding formulas. Divide into nine bottles; feed every two and a half hours from 6 A.M. to 9 P.M., then a bottle at 12 P.M. and one at 3 A.M.

FORMULA IV (FOR FOURTH WEEK)

(Ingredients, same as preceding formulas.)

Milk	7 ounces
Sugar, granulated	1 teaspoonful
Barley gruel or boiled water	20 ounces
Salt	a small pinch

Prepare as in preceding formulas. Divide into nine bottles, feed same as Formula III.

FORMULA V (FIRST TO SECOND MONTH)

(Ingredients, same as preceding formulas.)

Milk	8 to 10 ounces
Sugar, granulated	1 teaspoonful
Barley gruel or boiled water	18 to 20 ounces
Salt	a small pinch

Prepare as in preceding formulas. Divide into eight bottles. Feed every three hours from 6 A.M. to 9 P.M., then a bottle at 12 P.M. and one at 3 A.M.

FORMULA VI (SECOND TO THIRD MONTH)

(Ingredients, same as preceding formulas.)

Milk	10 to 14 ounces
Sugar, granulated	1½ teaspoonfuls
Barley gruel or boiled water	20 to 22 ounces
Salt	a small pinch

Prepare same as preceding formulas, divide into seven bottles, feed every three hours from 7 A.M. to 10 P.M., then one feeding about 2 A.M. Later divide into six bottles, feed every three hours from 7 A.M. to 10 P.M. No feeding after this until morning.

FORMULA VII (FOURTH TO SIXTH MONTH)

(Ingredients, same as preceding formulas.)

Milk	14 to 18 ounces
Sugar, granulated	1½ teaspoonfuls
Barley gruel or boiled water	18 to 22 ounces
Salt	a small pinch

Prepare as in preceding formulas. Divide into six bottles; feed every three hours from 7 A.M. to 10 P.M.

FORMULA VIII (SIXTH TO TENTH MONTH)

(Ingredients, same as preceding formulas.)

Milk	20-24 to 28 ounces
Sugar, granulated	1½ teaspoonfuls
Barley gruel	16-12 or 8 ounces
Salt	a small pinch

Prepare as in preceding formulas. Divide into six bottles; feed as in Formula VII.

TENTH MONTH

During this month gradually reduce the barley-water by taking out one ounce every two or three days and replacing it each time with an ounce of milk, so that in the course of two weeks the child is getting whole milk. Also omit the sugar and salt. By the end of the tenth month six to eight ounces should be taken at each feeding, once in four hours. Reduce the amount of the 10 P.M. feeding one ounce every few nights until this feeding is entirely omitted.

Commencing with the fourth month strained orange-juice or beef-juice may be given. Begin with one teaspoonful of either twice a day. This amount may be occasionally increased so that by the seventh or eighth month a baby can usually take one-half ounce of orange-juice or an ounce of beef-juice twice a day. These should be taken between two morning and two afternoon feedings. Either

will be found excellent in overcoming constipation. Beef-juice must be fresh and without taint when given to babies. As it decomposes easily, it is best not to give it during hot weather. *Solid food in any form should not be given before the tenth month.*

At the tenth month a small quantity of well-cooked oatmeal or other cereal (commence with a teaspoonful) may be added to the diet. Meal-hours should be arranged as follows:

- 7 A.M., milk-and-barley gruel or plain milk, 8 ounces.
- 11 A.M., milk-and-barley gruel or plain milk, 6 ounces, and a teaspoonful of cereal, well cooked, served with a little sugar and cream. This amount may be increased from day to day until a tablespoonful is given (that is, after it is cooked).
- 3 P.M., milk and barley or plain milk, 8 ounces.
- 7 P.M., milk and barley or plain milk, 8 ounces.
- 10 P.M., milk and barley or plain milk, 6 ounces.

Orange-juice and beef-juice may be given between meals.

ELEVENTH AND TWELFTH MONTHS

- 7 A.M., milk, 8 to 10 ounces.
- 11 A.M., milk, 6 to 8 ounces, twice a week, with a

fresh egg (raw) beaten up in it; in a week or two the egg may be coddled instead of raw, or boiled very hard and the yolk crushed to a powder; the white must not be given in this case; on other days a cereal, which should be varied two or three times a week.

4 P.M., milk, 8 to 10 ounces, with a small piece of white toast, zwieback, or cracker of the best grade only.

7 P.M., milk, 8 to 10 ounces.

Orange-juice and beef-juice may be given between meals.

Water. Be sure to give the child from one to three teaspoonfuls of cool boiled water three times a day between meals. Boil the water fresh once or twice a day and keep in a clean bottle, corked and in a cool place.

Cereals. All cereals should be cooked at least one hour in a double boiler, or one-half hour in a single boiler. In the latter case they should be boiled hard and stirred constantly to prevent burning. A still better way to prepare cereals for children is to cook them in a fireless cooker overnight. A little salt should always be put in the water with which the cereal is cooked, and a little sugar and cream served with it.

Toast. For children toast should be made of bread at least twenty-four hours old, preferably bakers' bread, then cut in thin slices, and dried in a slow oven until white and crisp, not brown.

Eggs should be very soft and evenly cooked through. To accomplish this place a saucepan of water over a hot fire. As soon as it comes to a boil remove it from the stove and drop the egg into the hot water. Let it remain there for five minutes, then remove and break the egg into a cup or saucer, and season with a very little salt.

Barley Gruel. One teaspoonful of barley flour mixed with a little cold water, then stirred into a pint of boiling water; boil fifteen minutes, and add a pinch of salt. Strain through a fine sieve or piece of cheese-cloth. After the third or fourth month two teaspoonfuls of barley flour may be used instead of one.

Beef-juice No. 1. One pound of round steak cut or chopped into fine pieces; five ounces of cold water. Place this in a covered jar and stand it in a cool place overnight, or from six to eight hours, then strain

through meat-press or cheese-cloth; season with a little salt.

Beef-juice No. 2. One pound of round steak slightly broiled or baked in a hot oven. Cut it into pieces about two inches square and squeeze in the meat-press or lemon-squeezer; salt slightly.

The juice obtained by either of these processes may be slightly warmed by placing the receptacle which holds it in warm water and constantly stirring it. Great care must be taken not to heat it too much, as the albumen will coagulate, thus detracting from its value and nourishment. The beef used must be absolutely fresh and without taint.

LAXATIVES FOR THE MOTHER

Bran Gems. One quart of bran, one pint of flour, a little over a pint of milk, ten tablespoonfuls of molasses, one level tablespoonful of soda bicarbonate, and a pinch of salt. One or two of these when eaten with each meal should overcome the most stubborn case of constipation.

- *Laxative Porridge.* One-half pint of water, two tablespoonfuls of graham meal,

and a pinch of salt. Cook in a double boiler for one hour, add a pint of milk, and steam for five minutes more. Strain and keep on ice until needed, when the mush may be warmed.

Laxative Fig Paste. One pound of figs, two ounces of powdered senna leaves, one ounce of coriander seed, and enough brown sugar to make a paste. Grind the figs, senna, and coriander seed through a meat-grinder, then stir in sugar to make a paste. Small quantities of this may be taken on going to bed or after meals.

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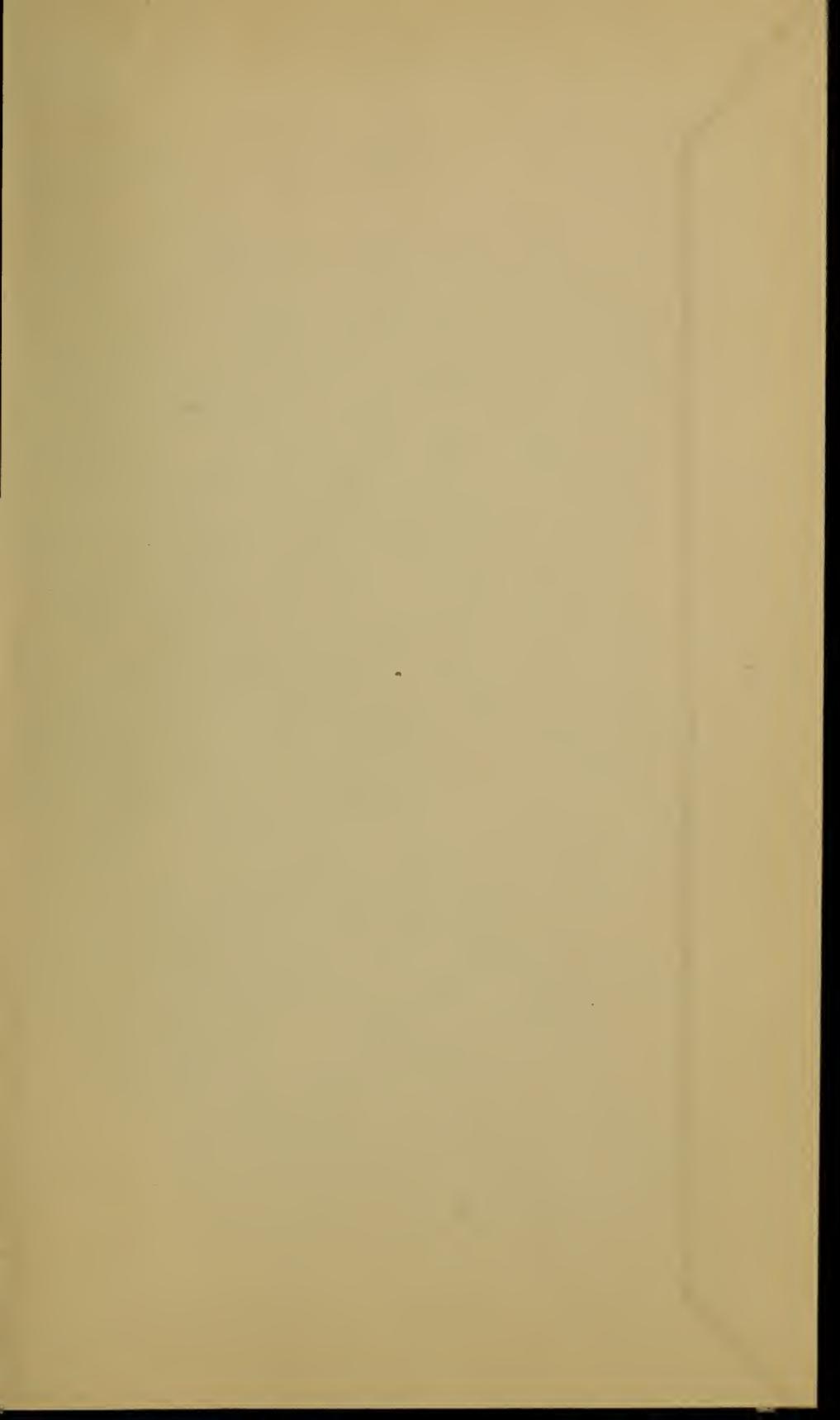
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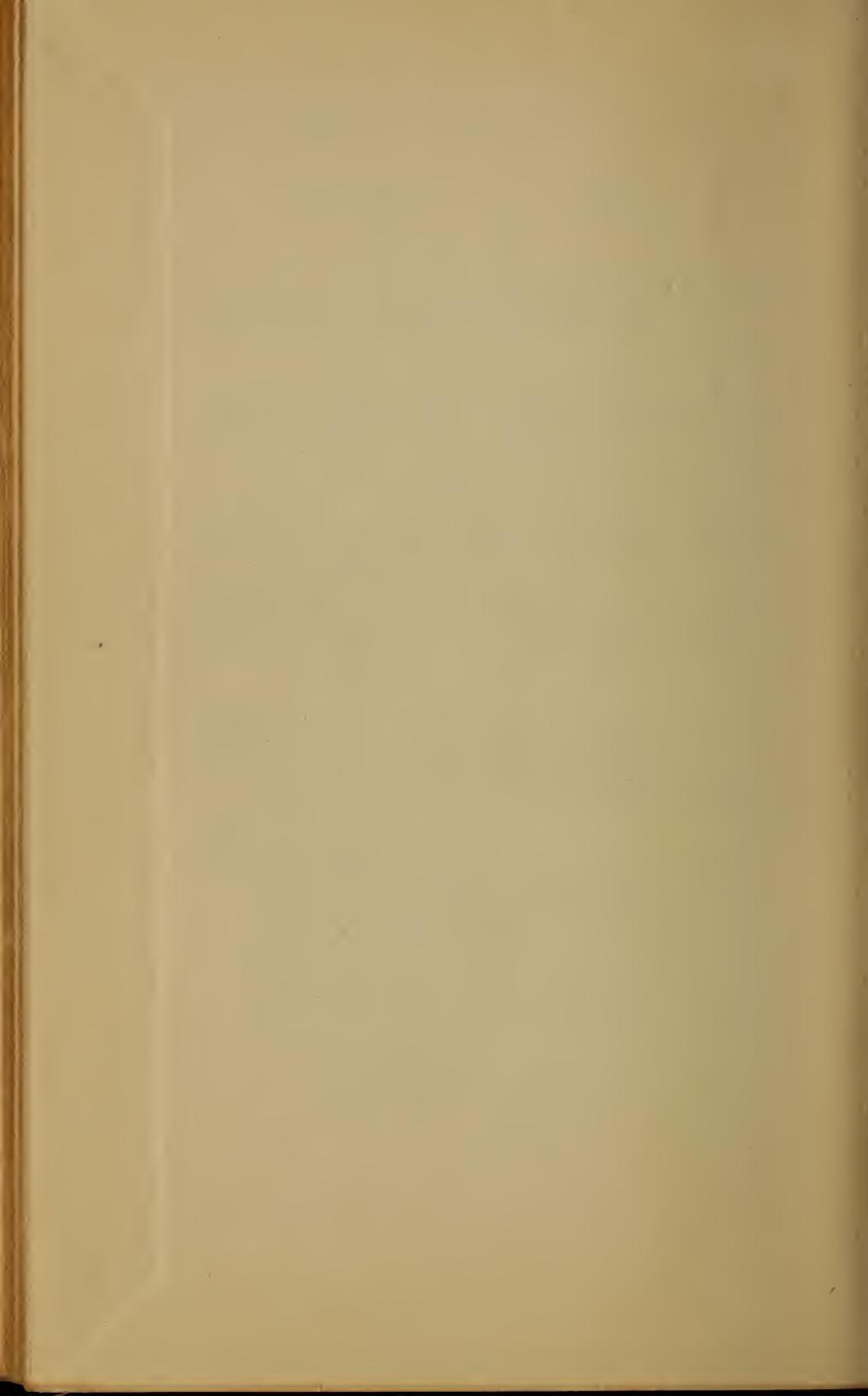
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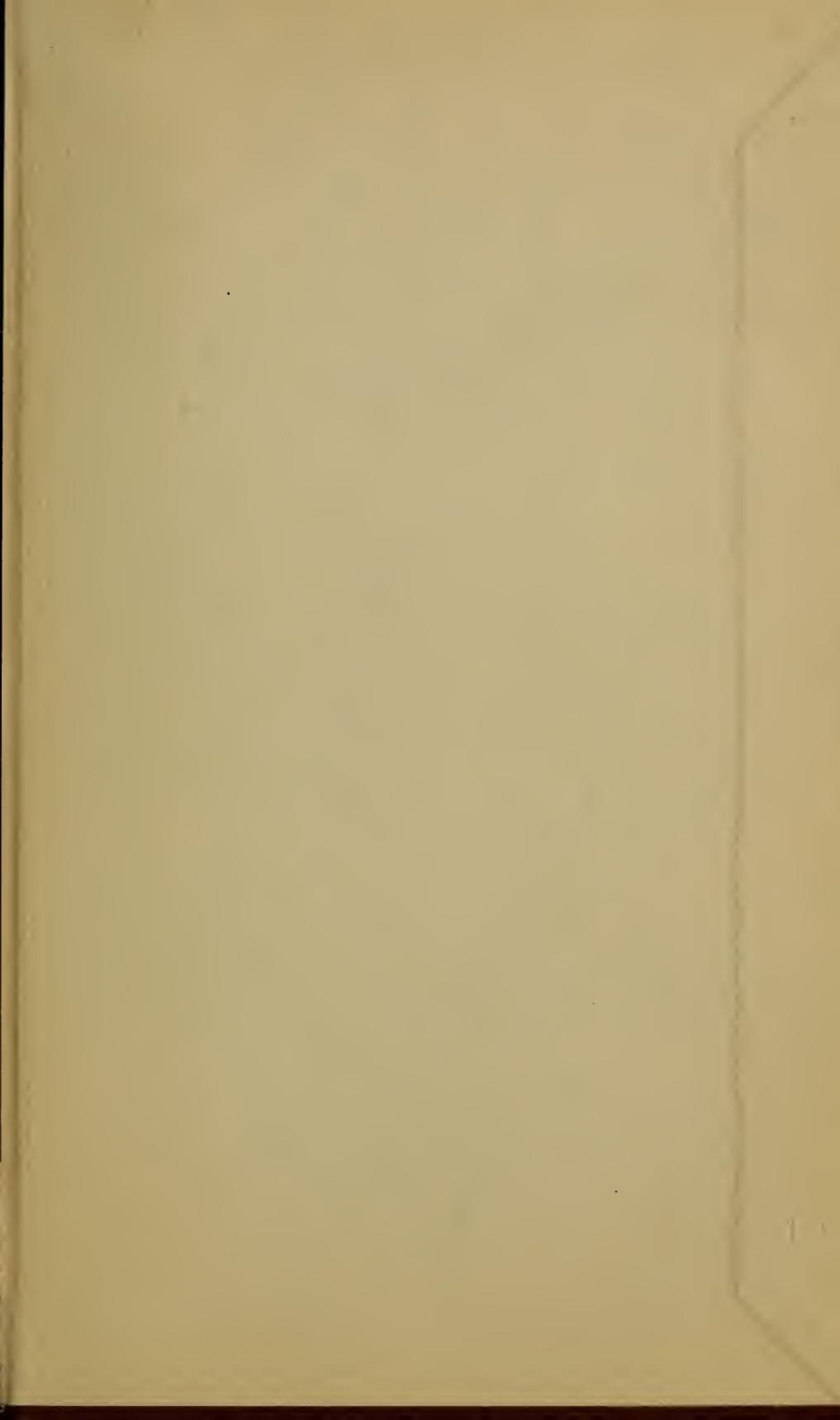
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